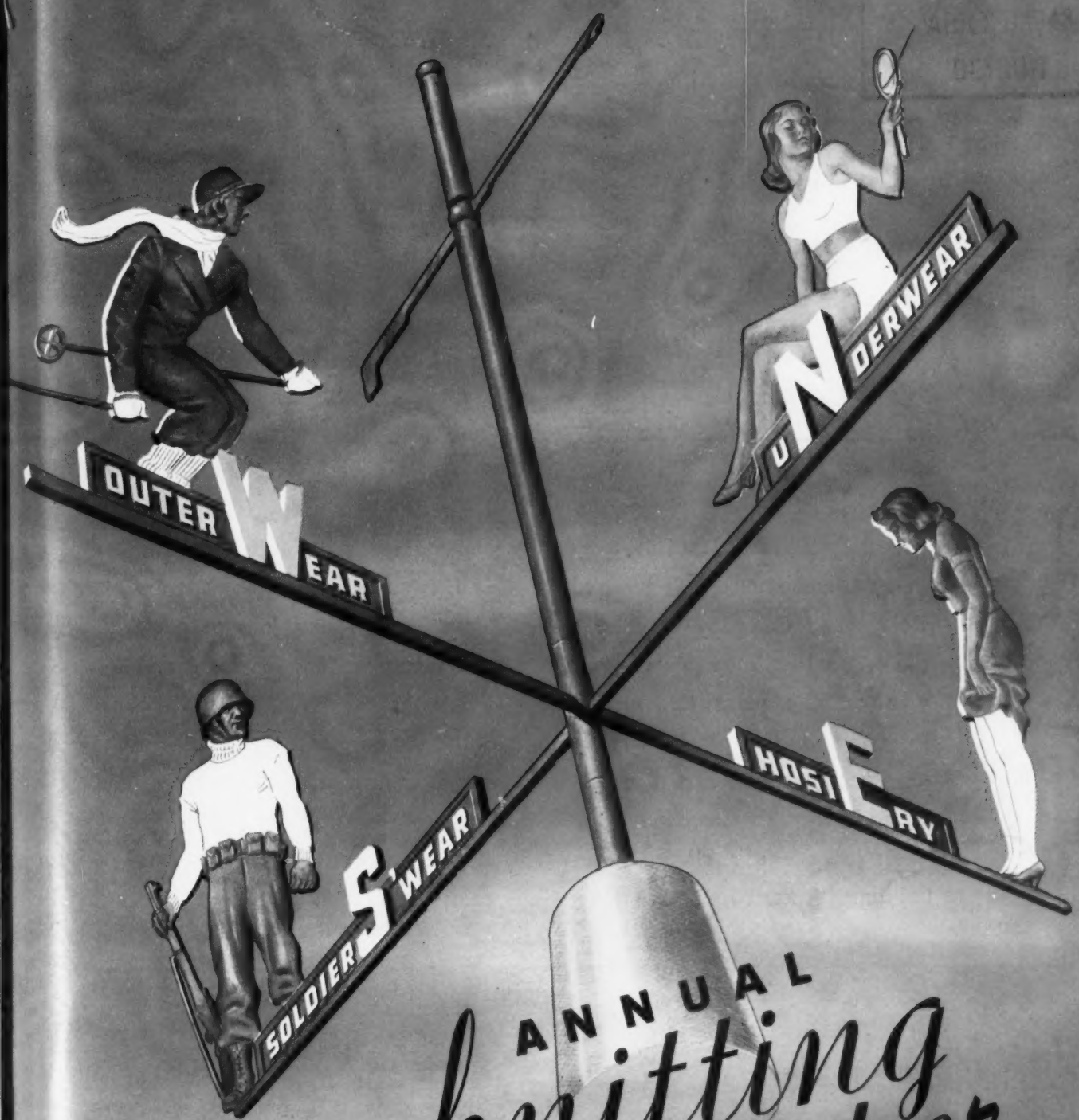
# Textile World

APRIL, 1943




ANNUAL

*knitting number*

**OFFICE, PACKING AND SHIPPING BUILDING OF THE ATLANTA ARROW SHIRT PLANT OF CLUETT, PEABODY & CO., INC.**

Cluett, Peabody & Company acquired their first Atlanta property in 1931, and immediately selected Robert and Company to enlarge the original building. As the volume of this plant has grown, Robert and Company's services have been employed to plan and supervise new construction. Our latest job for this client is the building illustrated above.

Robert and Company is prepared to handle all types of architectural and engineering projects — from simple remodeling jobs to great war plants and military and naval installations. In wartime planning and construction now, and in the expansion and readjustment of industry which the peace will bring, Robert and Company's staff offers complete, economical service.

# ROBERT AND COMPANY

INCORPORATED

*Architects and Engineers*

NEW YORK • ATLANTA • WASHINGTON

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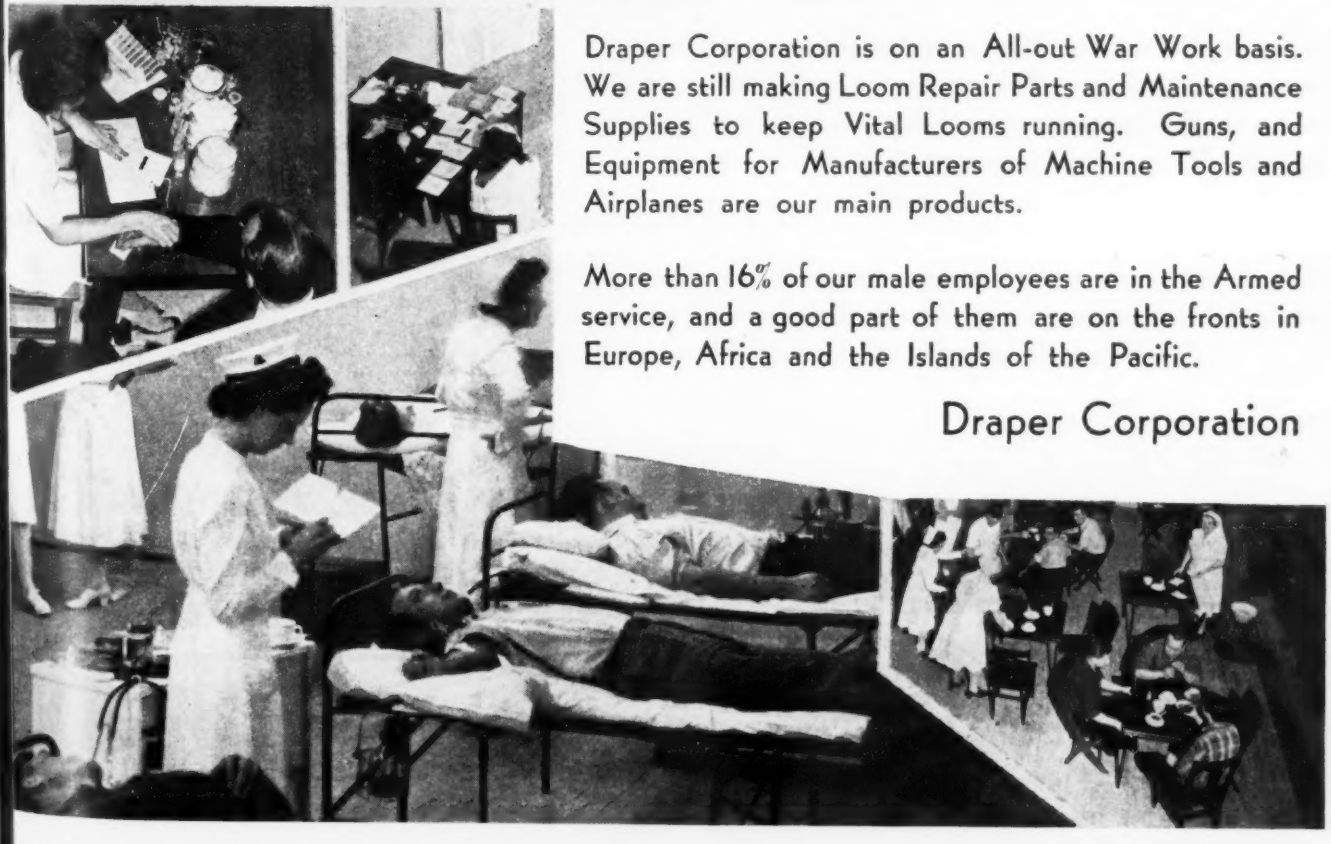
# Blood Donor Week in Hopedale

"A Pint of Blood to Save a Soldier's Life" was the watchword at Hopedale Community House during Blood Donor Week recently. Fourteen hundred Draper employees and members of their families volunteered as Donors, more than the Mobile Unit of the Boston Metropolitan Chapter of the Red Cross could take care of in a 5-day clinic.

Draper Corporation is on an All-out War Work basis. We are still making Loom Repair Parts and Maintenance Supplies to keep Vital Looms running. Guns, and Equipment for Manufacturers of Machine Tools and Airplanes are our main products.

More than 16% of our male employees are in the Armed service, and a good part of them are on the fronts in Europe, Africa and the Islands of the Pacific.

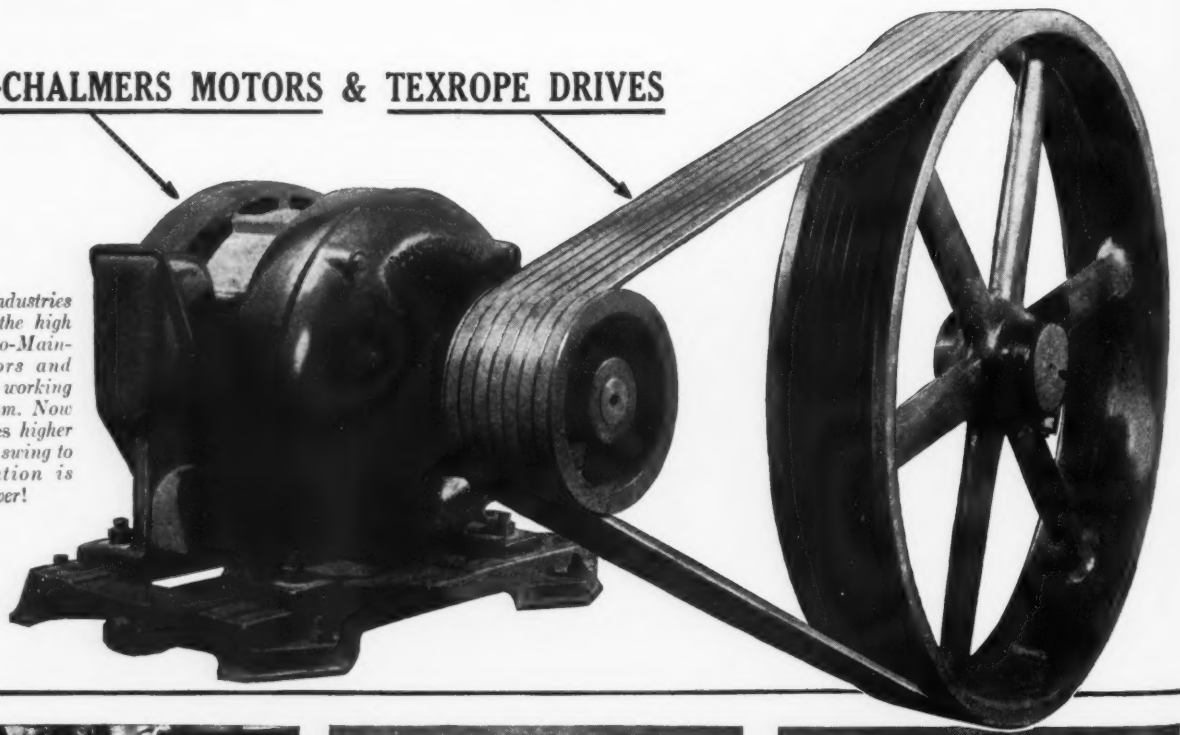
## Draper Corporation



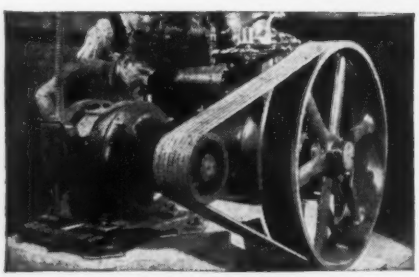
**IN PEACE AND WAR--**

# Give this an "E" for

## ALLIS-CHALMERS MOTORS & TEXROPE DRIVES

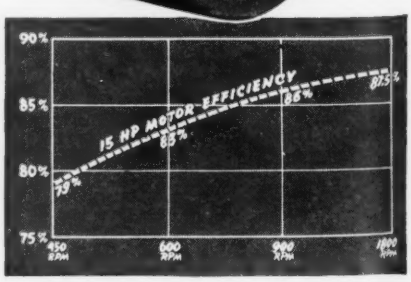


*Thousands of industries already know the high efficiency of Lo-Maintenance Motors and Texrope Drives working together as a team. Now that war forces higher efficiencies, the swing to this combination is stronger than ever!*



**1** In most applications, an 1800 rpm motor with Texrope Drive will ably do the job of a lower-speed, direct-connected motor —at lower cost in money *and materials!*

**2** When you buy an 1800 rpm instead of 450 rpm 15 hp squirrel-cage motor, for example, 600 lb are saved. And *you* save well over $200 — with drive figured in!




**3** Note that efficiency rises from 79% for the 450 rpm motor to 87.5% for the 1800 rpm motor. The 1800 rpm motor saves you over 30 kw/24 hr. day.

WE WORK FOR VICTORY — WE PLAN FOR PEACE

**ALLIS-**

# Combination Efficiency!

**☛ Using high-speed motors with Allis-Chalmers Texrope Drives and single-speed motors with Allis-Chalmers Vari-Pitch Sheaves and Speed Changers has always been good practice. Today it's a vital practice!**

**☛ Such combinations give sharply higher efficiencies —at lower cost in man-hours, money and materials!**

**☛ As America's only builder of both motors and V-belt drives, Allis-Chalmers has long studied and advocated their use in proper combination.**

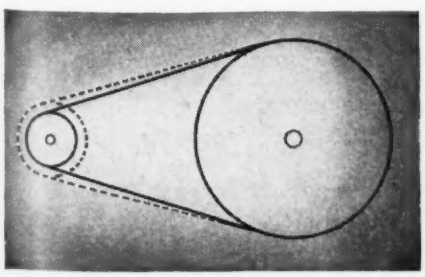
**☛ Today you benefit from Allis-Chalmers pioneering when you ask for—and get—the right combination of Lo-Maintenance Motor and Texrope Drive!**

BUILDING the largest variety of capital goods in the world, Allis-Chalmers know-how is in many ways unique — and is *completely* at the service of American war industry.

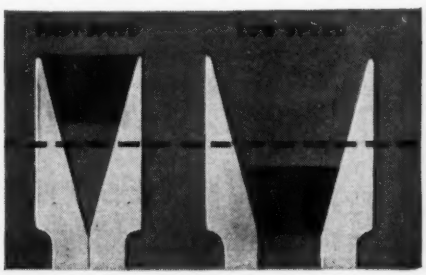
Allis-Chalmers, builder of Lo-Maintenance Motors, *originated* the multiple V-belt drive and Vari-Pitch Sheaves.

Today there's every patriotic *and business* reason for using material-saving, money-saving single speed and high-speed motors — made flexible and more efficient by Texrope Drives.

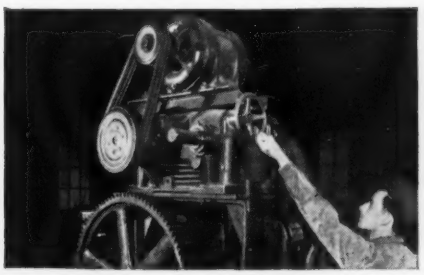
Don't hesitate to call on Allis-Chalmers district offices for engineering data or recommendations — or write direct to ALLIS-CHALMERS MFG. CO., MILWAUKEE, WISCONSIN. A 1581



**4** Infrequently needed speed changes can be had by changing from one size motor sheave to another. Juggling *complete* drives, range is 1:1 to 7:1.



**5** With the Allis-Chalmers Vari-Pitch Sheave, you can increase or decrease speed by adjusting sheave diameter . . . obtaining an *unbroken* series of speeds!



**6** Allis-Chalmers Vari-Pitch Speed Changer gives you infinite changes at the turn of a wheel — within 3.75 to 1. It's compact, flexible, *efficient!*

# A-CHALMERS

***LO-MAINTENANCE MOTORS***
***TEXROPE DRIVES***

# FOOD

## *Comments by Henry G. Lord*

During a visit that I made to England in the last war, I attended a luncheon given by the Canadian High Commissioner in London, at which it was my good fortune to sit next to Winston Churchill. I do not think he was in the Cabinet at that time, although he was a member of Parliament. I remember his telling me that his mother was an American and that he knew the United States very well.

Among other things, we discussed the food problem. I recall that, when coffee was served, he had no sugar and, as I did not use sugar and had several extra pieces in my little packet, I offered him mine. He accepted, and in return insisted upon giving me his portion of grapes. We had a good laugh over our barter of food.

The last week or two have brought it home to us that we are not so far removed from those primitive ways of life. But if you live in the city the difficulty is that there is nothing to barter. You can't swap a codfish for a few lamb chops if there is none of either. The only thing the city dweller has to swap is money and, when you go to the butcher shop and look at the bare counters and find that the butcher has nothing to give you for your money, you are face to face with hunger. You can't eat currency. What's the use of high wages if there is nothing to buy?

It begins to dawn on us that the war has penetrated to the home front! I am not saying that we are not willing to "pull in our belts;" indeed, I think that all of us get a kick out of the feeling that we, too, are making sacrifices instead of going along as usual.

But what makes me "hot under the collar" is when I think of the crops that were not allowed to be planted; the cows that were slaughtered because they couldn't be cared for; the fruits and vegetables that couldn't be gathered—all because someone has blundered. I confess to feeling disturbed when I see, in a few short weeks, the machinery of food supply and distribution failing to function in an orderly manner. It seems to me like *mighty poor planning!*

The chickens are coming home to roost! (I wish they would roost in my kitchen).

I guess there will be more backyard gardens this year than ever before. It looks like 1943 might be hard-going on the home front, especially on the kitchen front.

Every one of us will come to realize the importance of careful planning and efficient management of our own individual jobs, as well as of our mills and factories and, most important of all, of our national affairs.

HENRY G. LORD, *Vice-President of McGraw-Hill Publishing Co. and Founder of Textile World*

Official O.W.I. photo

# SUN LUBRICANTS

## eliminate drippage . . . reduce breakdowns!

Many mills endured production delays in peacetime that just had to be eliminated when they swung into the "all-out" schedules of wartime.

This was certainly true of a large Eastern silk mill. Lubrication had been a problem that hampered production. The greases they were using were not consistent, separated and caused delays. But with war production that had to be stopped in a hurry . . . and it was stopped when a Sun textile man — one of those Doctors of Industry — was called in. He advised a change from competitive greases to SUN 300A Gun Grease. Lubrication problems went out for the duration.

Now this mill is always sure of uniform products that "stay on the Job" to keep production of vitally needed fabrics on schedule. Sun Lubricants do not separate, bleed or break down.

Here again is one of the many examples from performance data files that proves the achievements that Sun Textile Research makes possible in the mills of America. Whatever your problem — for lubricating or processing — Sun's Doctors of Industry always stand ready . . . willing . . . and able to help you in your mill. Their services are yours to use. For further information just write to Sun Oil Company, Philadelphia.

SUNOCO

**SUN PETROLEUM PRODUCTS** *HELPING INDUSTRY HELP AMERICA*

# IN THE SERVICE

## . . . on two fronts

**Victory** is a goal for which the youth of America are willingly sacrificing their all. By comparison our tasks on the home front are easy . . . yet our responsibility and duty to produce materials and equipment to speed the victory are great. The Army-Navy E citation which has been awarded to the men and women at the Saco-Lowell Shops is a symbol recognizing not only work accomplished, but also the responsibility yet to be completed. To us this award is and will continue to be a constant incentive . . . and an emblem which we shall strive to be deserving of always.

**This is our pledge:** To work unceasingly in the production of war materials in support of the 700 fellow workers represented on our service flag.

**This is our goal:** To hasten the day when they will again take their places beside us in peace-time production.

## SACO-LOWELL SHOPS

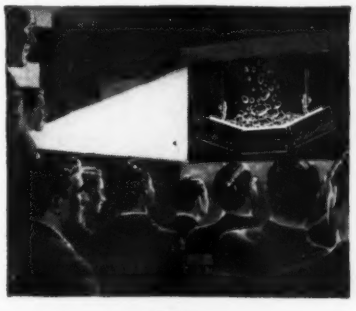
## Biddeford, Maine

# 26,985

## PLANT AND FIELD OPERATING MEN USE THIS MANUAL

YOU can get far longer life from your precious belting, hose and other rubber products by following the conservation practices recommended in this authoritative manual, prepared by the G.T.M. – Goodyear Technical Man.

More than twenty-six thousand field and factory maintenance men are now using it, after seeing its rubber-saving helps demonstrated in the interesting slide film "GOODYEAR WAGES WAR ON WASTE." To have this important film shown to a group meeting at your offices, and to obtain copies of the manual for your key operating men, write Goodyear, Akron, Ohio or Los Angeles, California – or phone the nearest Goodyear Mechanical Rubber Goods Distributor. Remember many rubber products cannot be replaced – the Goodyear conservation plan will help you save them!

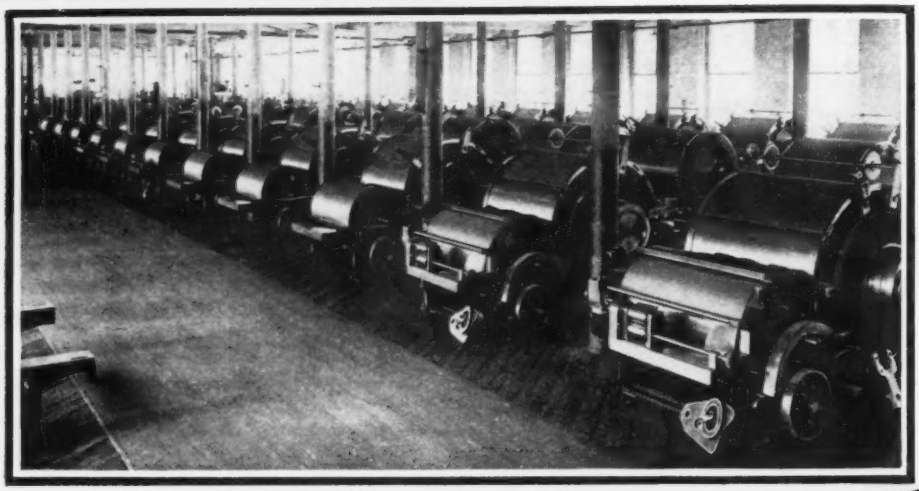


**SEE HOW TO GET UP TO 50% LONGER WEAR FROM BELTS AND HOSE** — *it's clearly shown in the slide film "Goodyear Wages War on Waste" — with complete instructions in the Goodyear Manual.*

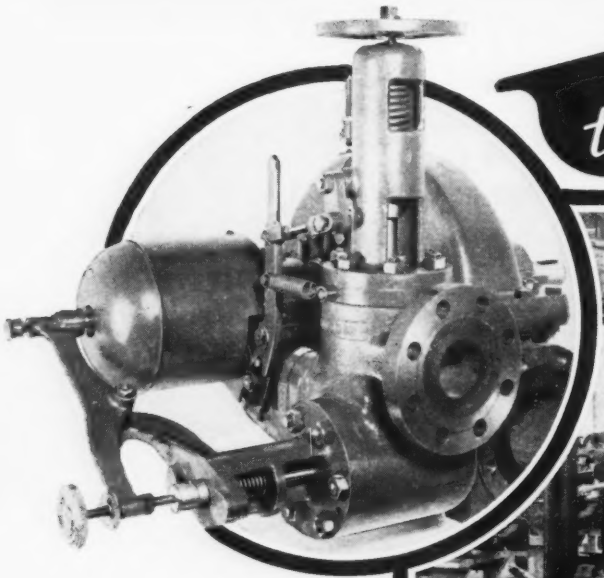
# GOODYEAR

**THE GREATEST NAME IN RUBBER**

# *from* Textiles



# *to* Turbines

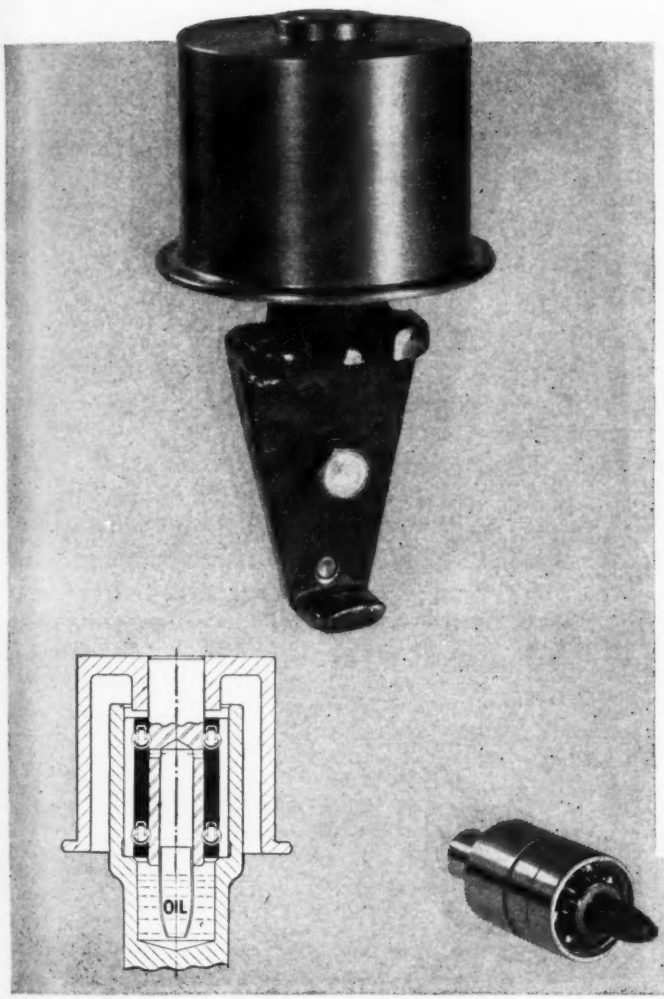


On the floor where cotton cards used to be assembled we are now producing mechanical-drive Turbines.
This is only one of many conversions that have been made in our plant in furtherance of the war effort. These Turbines are used aboard ships and in Uncle Sam's busy factories for the production of vital war goods.

P. S. Steam Turbines are especially valuable in high octane gas refineries and synthetic rubber plants where reduction of fire hazard is imperative.

**WHITIN MACHINE WORKS**
**WHITINSVILLE, MASSACHUSETTS, U. S. A.**
**CHARLOTTE, N. C.** **ATLANTA, GA.**

# inside it's always *raining*



● Yes, a continuous shower of tiny drops of oil inside this Tension Pulley Ball Bearing keeps balls and raceways automatically lubricated. It is the *first* anti-friction bearing with its own oil-circulating system—a permanent built-in feature, enabling it to run for a year or more without attention.

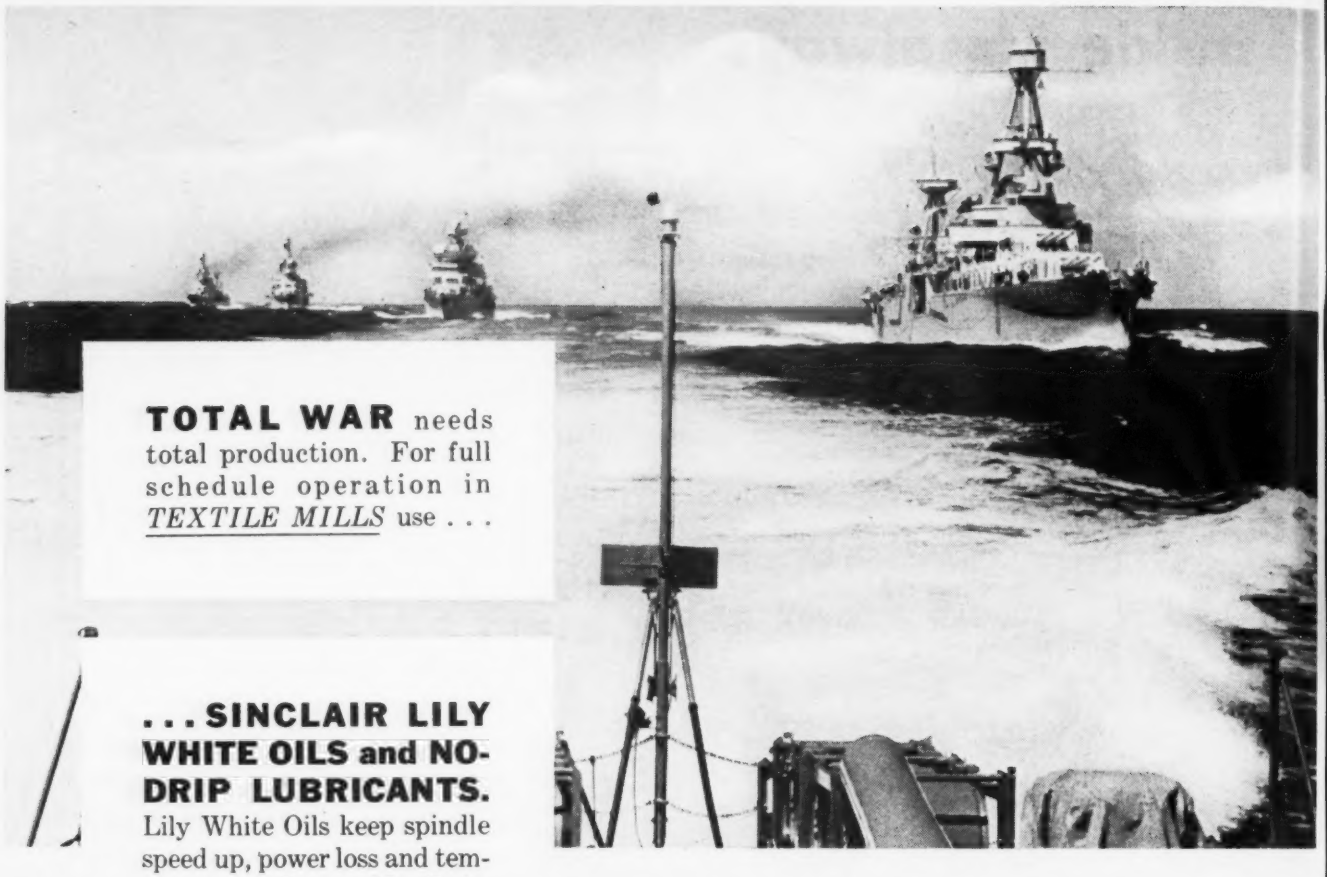
Since the products of New Departure are *ideas* as well as ball bearings, this company has developed many "famous firsts," has revolutionized mechanical design in many textile machines.

Nothing rolls like a ball. Ball bearings are used wherever shafts turn. In planning your post-war production get acquainted with our line of special purpose bearings for the textile industry. . . . New Departure Division of General Motors, Bristol, Connecticut.

**New Departure**

**. . THE FORGED STEEL BEARING**

3147

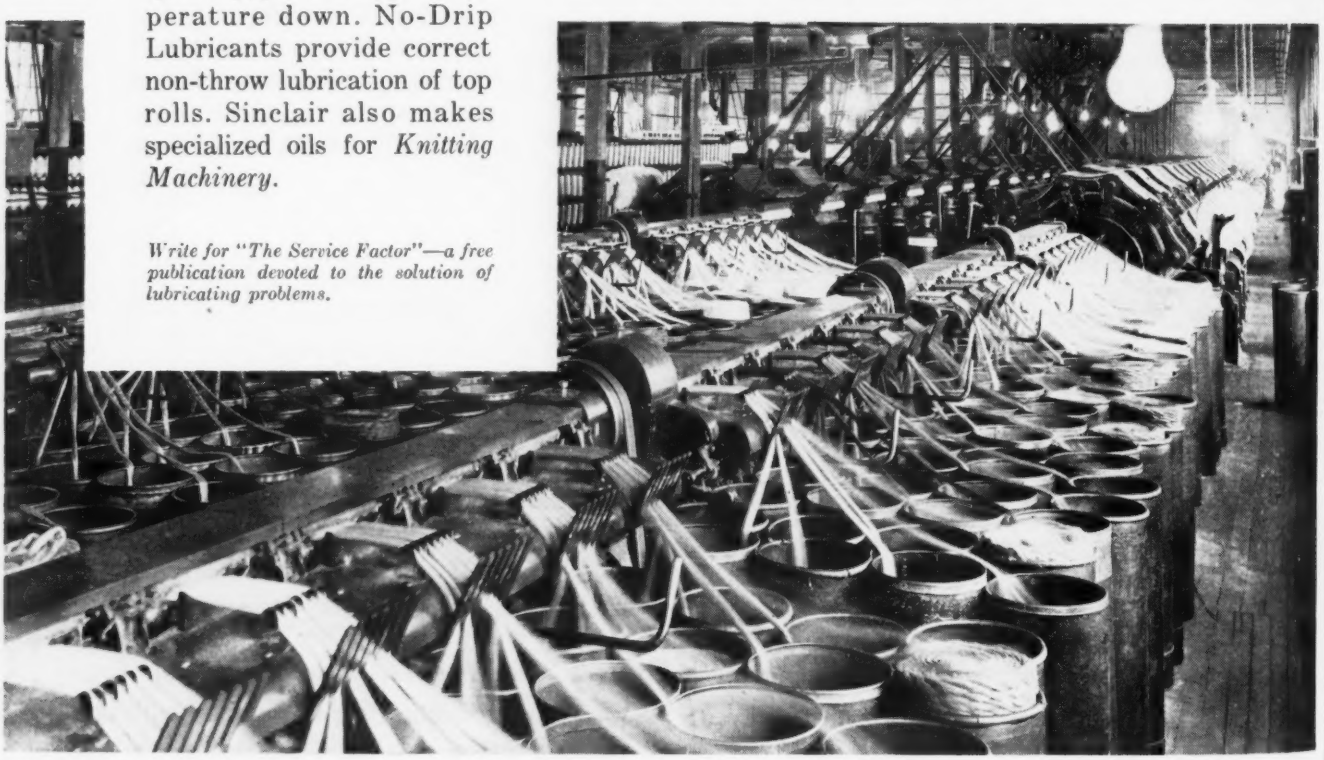


**TOTAL WAR** needs total production. For full schedule operation in *TEXTILE MILLS* use . . .

**. . . SINCLAIR LILY WHITE OILS and NO-DRIP LUBRICANTS.**

Lily White Oils keep spindle speed up, power loss and temperature down. No-Drip Lubricants provide correct non-throw lubrication of top rolls. Sinclair also makes specialized oils for *Knitting Machinery.*

*Write for "The Service Factor"—a free publication devoted to the solution of lubricating problems.*



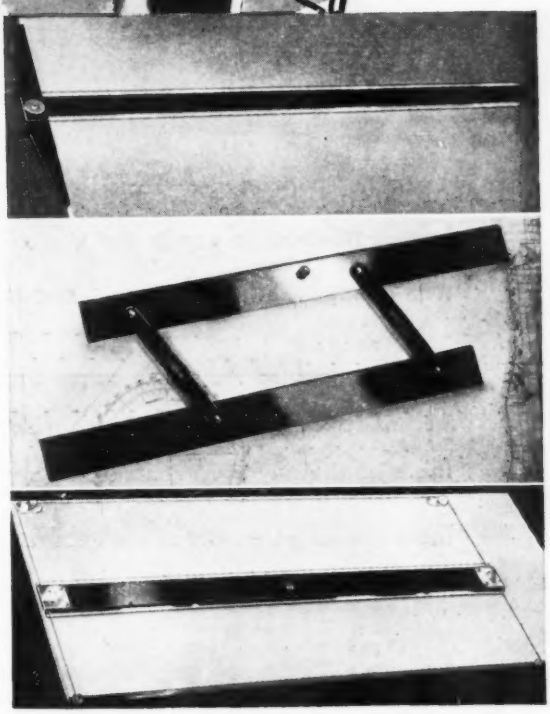
# SINCLAIR TEXTILE LUBRICANTS

***FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE NEAREST SINCLAIR OFFICE***

SINCLAIR REFINING COMPANY (Inc.)

2540 West Cermak Road, Chicago • 10 West 51st Street, New York City • Rialto Bldg., Kansas City • 573 West Peachtree Street, Atlanta • Fair Building, Ft. Worth

# A FRIENDLY HAND *to the Engineer*



HERE'S some friendly help to the engineer in his own personal work. By using Formica for numerous purposes in the machines they design engineers have often found the going easier, the product better. Now this same modern, laminated plastic material is offered in the form of T squares and other drawing instruments for use in the draughtsman's work—instruments that wear like iron, hold together and endure for years, never change in dimensions or appearance. They are beautiful instruments when you get them and they remain that way.

They are manufactured from Formica materials by the Engineering Sales Company, Sheboygan, Wisc.

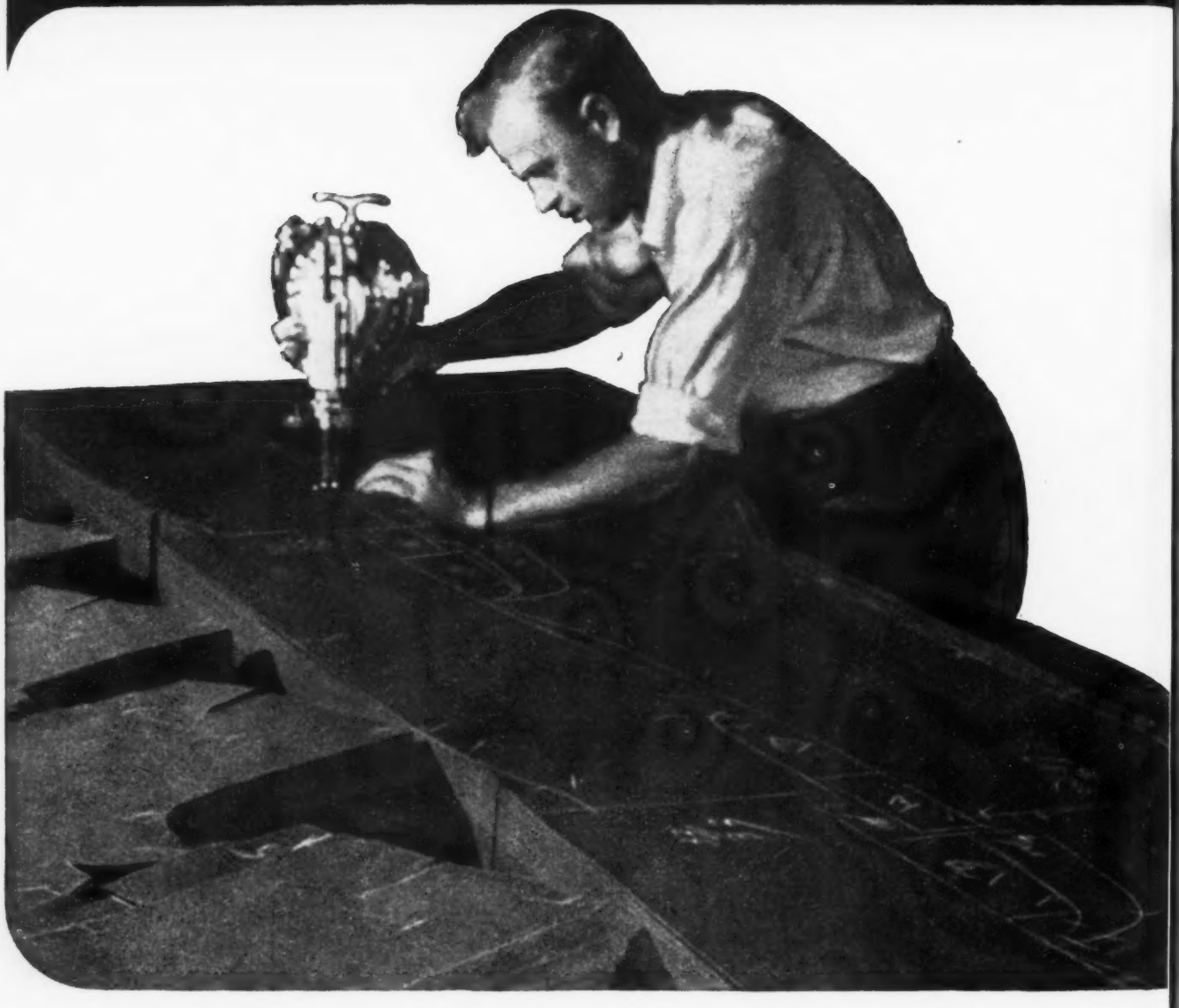
ARMY E NAVY

FORMICA

Formica has received the Army-Navy "E" Award for Excellence in Production.

**THE FORMICA INSULATION CO. • 4636 SPRING GROVE AVE. • CINCINNATI, O.**

# There's a man-size job cut out for every American!



O.W.I. Photo

Yours is to produce — and fast — the unprecedented quantities of fabrics needed to equip our armed forces. Ours is to provide you with tough, long lasting, accurately made

TUFFER CARD CLOTHING

War has doubled the textile output but is exhausting mechanical equipment at a rate far in excess of normal. This is particularly true of card clothing—because *card clothing takes the rap.*

These conditions dramatize the need for quality. Tufferized Card Clothing is your assurance of top performance.

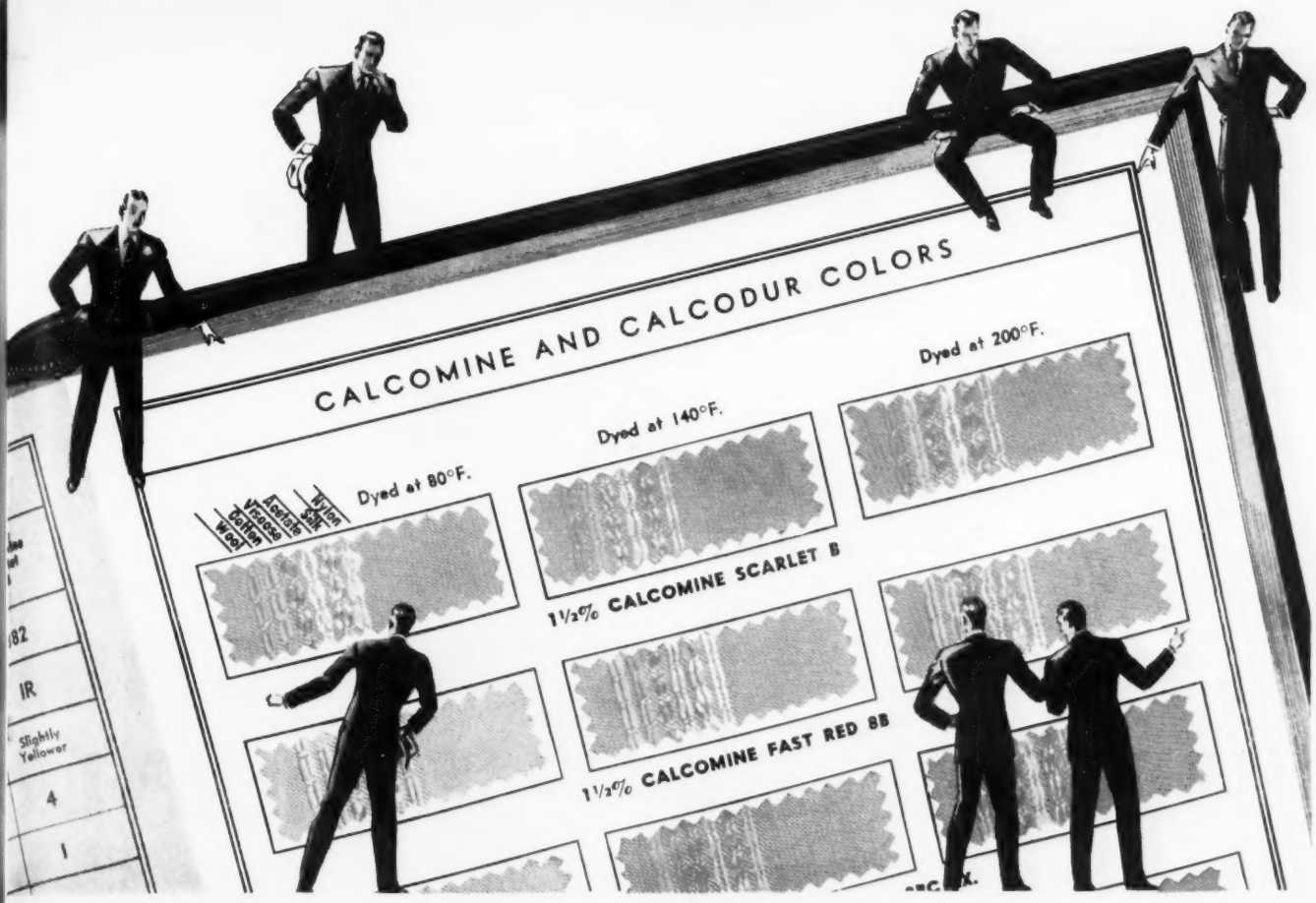
**TUFFER PRODUCTS**

Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye & Regular Wire Heddles

## HOWARD BROS. MFG. CO.

**WORCESTER, MASSACHUSETTS**

**Southern Plants:** Atlanta, Ga., Gastonia, N. C. **Branch Offices:** Philadelphia, Dallas. **Canadian Agents:** Colwool Accessories, Ltd., Toronto 2




# What every colorist wants to know about Viscose Rayon

How WILL rayon's individual characteristics affect the direct dyeing of fabrics? Further, with the tremendous, war-spurred use of rayon *mixtures,* what will be their behavior in the dye-bath?

Here at Calco, our chemists have made a thorough study of the behavior of dyes on this fiber. And their findings are summarized in the newly published Calco Shade Card, "Direct Colors on Viscose Rayon."

This volume shows the exact shades of Calco direct dyes upon viscose rayon piece goods containing floaters of cotton, wool, viscose rayon, acetate rayon, silk, and nylon . . . dyed at 80° F.; 140° F.; 200° F. In addition, the study includes a detailed summary of the various fastness properties, including light, metals, perspiration, and washing.

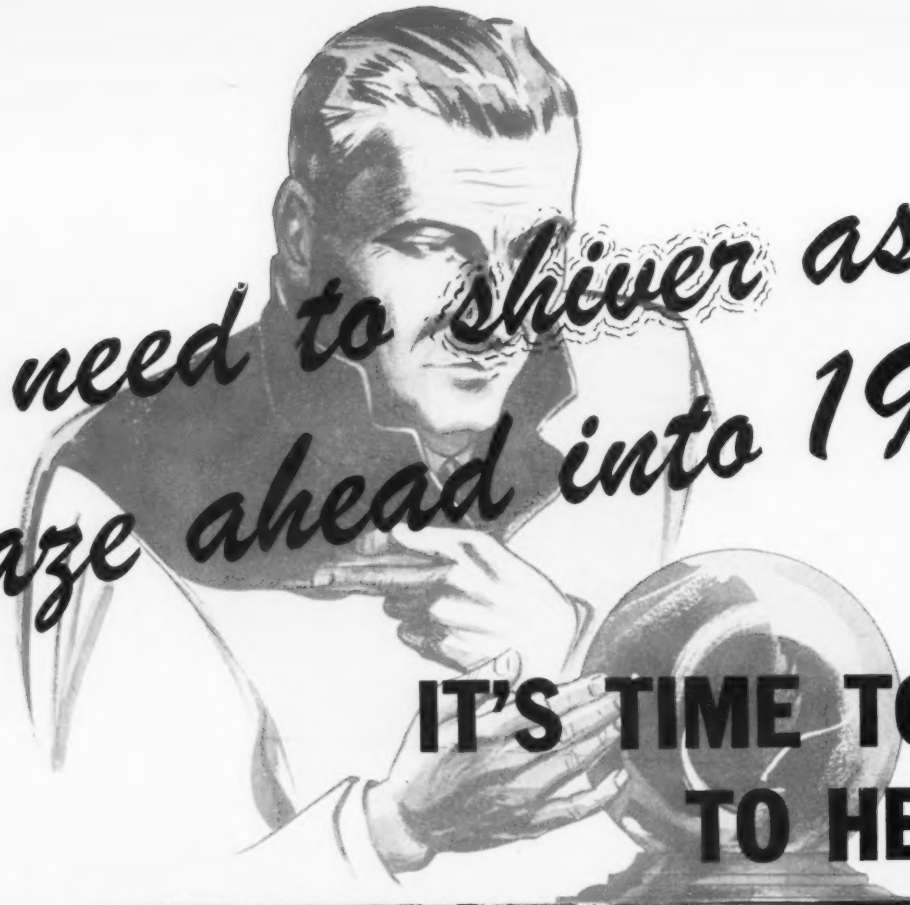
But no single volume could encompass all your specific problems. This Calco Shade Card merely emphasizes the value of coming directly to color headquarters—Calco—with your problems. Our technical staff is always ready and anxious to serve you.

Have you a "bug" in your dyeing operations? Pass it along to your Calco representative! And if for any reason, you, as a textile executive or head of the dyehouse, have not yet received a copy of "Direct Colors on Viscose Rayon," we will be glad to see that you get one.

**CALCO CHEMICAL DIVISION · AMERICAN CYANAMID COMPANY**

**BOUND BROOK, NEW JERSEY**

BOSTON · NEW YORK · PHILADELPHIA · CHARLOTTE · PROVIDENCE · CHICAGO



# *No need to shiver as you gaze ahead into 1943*

## IT'S TIME TO STAR R
## TO HELP LIONE

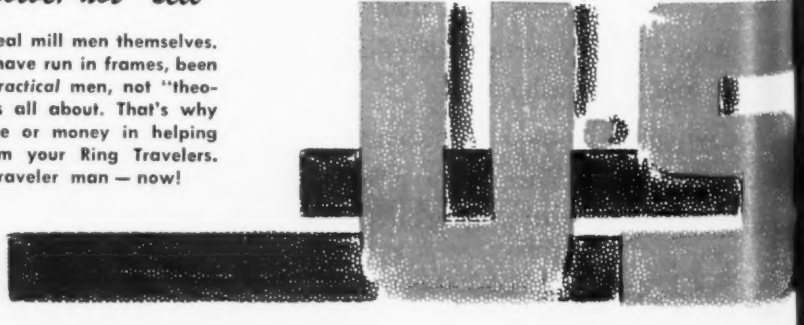
**BUY WAR BONDS AND TIGHTEN THE U. S. RING AROUND THE AXIS!**

**SOLD**
**UNDER THESE TRADE NAMES**

- Bowen Round Point Travelers
- Bowen Square Point Travelers
- Bowen Improved Vertical Bronze
- Bowen Patented Bevel Edge
- Bowen Flat Oval and Round Wire Travelers
- Bowen Patented Ne-Bow Vertical
- Bowen Patented Vertical Offset

*This man comes to solve, not "sell"*

"U. S." representatives are real mill men themselves. They started at the bottom, have run in frames, been overseers, supers. They're *practical* men, not "theorists". They know what it's all about. That's why they won't waste your time or money in helping you get better service from your Ring Travelers. Send for a "U. S." Ring Traveler man — now!

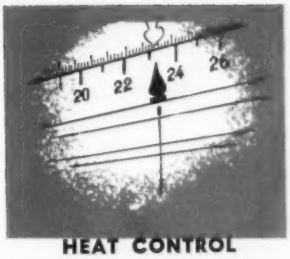


No. 8 OF A SERIES
BASED ON INTERVIEWS WITH TEXTILE MEN who want more production

# RING TRAVELER QUIZ
# ONE PROBLEM OF DETERIORATION

As TEXTILE WORLD so truly says, "The problems of machine deterioration, due to present unprecedented production schedules, and without the prospect of replacement, can be partially offset . . . by soliciting the advice of supplying companies." Now, rundown equipment and replacement difficulties are just two of the biggest bogies that textile men will face in the months ahead. We needn't go into all the rest! You know them as well or better than we do. Intelligent planning and action will help you lick a lot of your production problems. And one of the best recommendations we can offer is this—put on a real "quiz" program with equipment manufacturers to get every iota of information as to how equipment can be made to last longer and serve better, and whether they can supply any improvments that will help you.

● That is where we come in—on Ring Travelers. You textile supers are hardboiled when it comes to travelers. But you can't overlook any possibility that there *may* be room for improvement in the travelers you are using. In any event it will cost you nothing to find out from a "U. S." Service Man. We stand ready to give you expert advice on the design and performance of travelers as influenced by ring sizes, spindle speeds, heat, twist, stock, lubrication and all other factors you know so well. "U. S." Ring Travelers are the product of precision manufacture, scientific control of every detail, with special attention to metallurgy—aimed to get the best results from fast-dwindling supplies of bronze and steel. Write or wire us. Let us get together on your problems of maintenance and performance of ring travelers—to increase your War Production output and transform the "shivers" of 1943 into a warm glow of satisfaction!




**HEAT CONTROL**

for better metal—dominates "U. S." production! Carburizing and tempering ovens are electrically controlled through pyrometers—for better performance.

**THE BEVEL EDGE**

Great pioneering "U. S." contribution to smooth spinning, twisting. Eliminating angular edges, gives uniformity of tension more even yarn, less "fly."

**THE NE-BOW**

Prevents yarn ends flying out, provides ample headroom for threading—prevents binding on ring. Note "bend inward" at top of horn.

**PERFECT BALANCE**

Weighs same on both sides. Straight part of shank is in center of gravity. Distributes lubricant and wears evenly. Will not pivot twisting self and rayon.

**U. S. RING TRAVELER COMPANY**

**PROVIDENCE** AMOS M. BOWEN *President and Treasurer* **RHODE ISLAND**

# RING TRAVELERS

***A Traveler for Every Fibre***

**E TRAVELERS THAT KEEP GOING!**

U. S. RING TRAVELER CO.

# L. F. Dommerich & Company

*Executive and General Offices*

271 MADISON AVENUE
NEW YORK, N. Y.

Telephone: AShland 4-8650

# FACTORS

For Manufacturers and Merchants

*Inquiries as to our services solicited*

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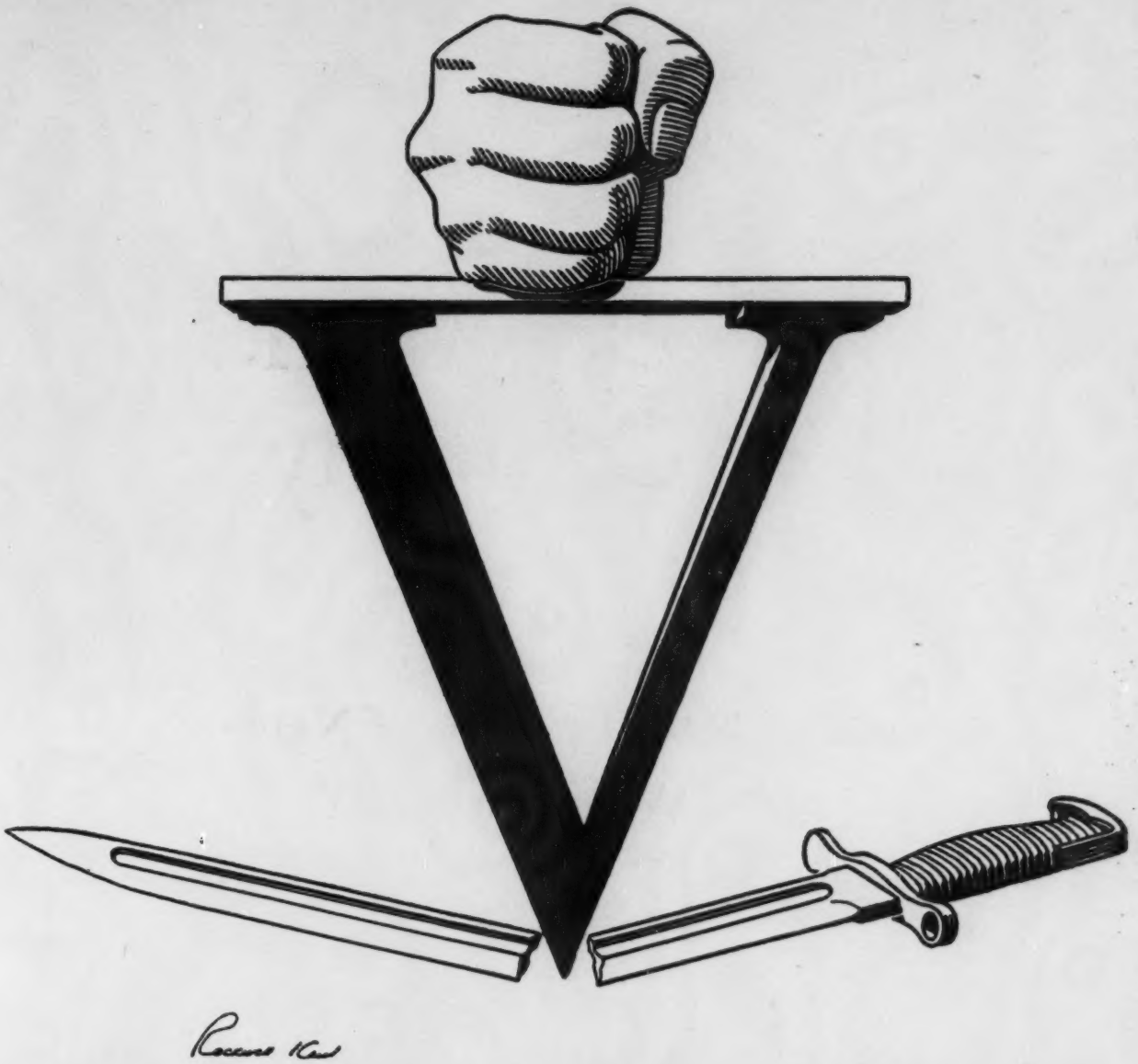
ESTABLISHED 1840



# WE ARE DISCOVERING SOMETHING IN THESE DARK DAYS OF WAR . . We are discovering that our America is just about twice as strong, twice as capable and twice as productive as we had ever before imagined. We are proving in the shop and in the forge and in the factory that there is no physical achievement which may be desirable that is impossible to us. We can do, as a people, anything...literally anything...that we want to do.

DONALD NELSON

GENERAL DYESTUFF CORPORATION

*Synthetic yarns help take him up and set him down*

# CHEMICAL WARFARE?

**Yes, even if in this war the U. S. A. never fires a gas shell or launches a gas attack, this will have been a chemical war without parallel in U. S. history.**

LET THE JAPS cut off our silk supplies! Hundreds of thousands of practice and combat jumps will have been made safely because America's chemists have made nylon and high tenacity rayon, which adequately replace silk in parachutes. In bomber tires rayon cord helps to take our paratroopers off the ground, and snagproof rayon field uniforms protect them when they land.

It is a source of great satisfaction to us, the workers of Charles B. Johnson Machine Works, to know that, in addition to the direct war work we are doing, Johnson Slashers, special Tire Cord Treating Machines, and other equipment are being used in hundreds of plants all over the United States, to size nylon for parachutes; to size rayon and acetate warps for uniform cloth and linings; to treat cord for bomber, jeep, truck and other army tires; to treat parachute shrouds; as well as doing the major portion of the slashing of synthetic warps for fabrics for civilian use.

Even more satisfaction comes to us from the knowledge that these machines are running 24 hours a day, 7 days a week, with practically no increase in servicing requirements from us.

## CHARLES B. JOHNSON MACHINE WORKS

**PATERSON**

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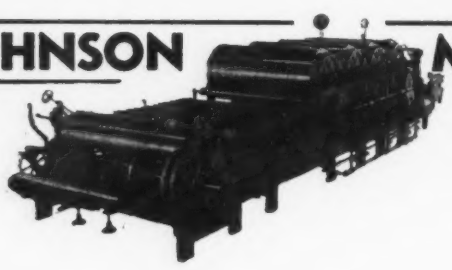

**NEW JERSEY**

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# ... I do mean "And Engineering"!

It is not enough, we think, to build top quality motors; rugged and smooth-running motors; motors of advanced design with unique protective features and low-maintenance advantages. This we do.

But, our job is not done until we have pooled our motor-building ability and engineering experience with your intimate knowledge of the operating requirements in your plant.

**FOR MOTOR-DRIVE IS MORE THAN POWER.** Properly applied, motor-drive can do *many things.**

Reliance Application Engineers—production minded men with broad experience in many industries—will welcome an opportunity to help you get the right answers to the question—*"What can we make the motor do besides supply power?"*

*Just phone or write the Reliance office nearest you.*

***Motor-drive provides within itself a means of:**

| | |
|---|---|
| Speed Control | Reversing |
| Braking | Remote Control |
| Tandem Operation | Controlled Acceleration |
| Tension Control | Safety |

**Slow Speeds for inching, threading, inspection**

**Applying them to boost production and improve quality is APPLICATION ENGINEERING. That's our business.**

**RELIANCE A-C D-C MOTORS**

**RELIANCE ELECTRIC & ENGINEERING CO.**
**1088 Ivanhoe Road, Cleveland, Ohio**

**BIRMINGHAM • BOSTON • BUFFALO • CHICAGO • CINCINNATI • DETROIT • GREENVILLE, S. C. • HOUSTON, TEX. • LOS ANGELES • MINNEAPOLIS NEW YORK • PHILADELPHIA • PITTSBURGH • PORTLAND, ORE. • ST. LOUIS • SAN FRANCISCO • SYRACUSE, N. Y. • AND OTHER PRINCIPAL CITIES**

He's carrying more loads, bigger loads . . . and carrying them farther. Doing a wonderful job, too, in spite of all handicaps.

You can help him. Not necessarily because you're philanthropic, but because it's to your own interests to lend a hand. It's only good business to help your railroad shipments go through undamaged . . . to prevent waste of materials, manpower, machinery, time and shipping facilities.

You can help tremendously merely by using better corrugated shipping boxes . . . boxes that are sturdier, stronger, better engineered to stand up under longer hauls, heavier loads, and handling by inexperienced men.

The few extra pennies in original cost will soon be dwarfed by month after month savings. You can prove that to your own satisfaction by writing the H & D Package Laboratory. Learn what has been done for others, what can be done for you.

# Protect the Product

***BETTER SEE H&D AUTHORITY ON PACKAGING***

★ SHIP RIGHT FOR VICTORY ★

**YOU CAN USE THESE FREE "TEXT-BOOKLETS"**

Whatever you ship, wherever you ship it, you will find pages of helpful information in this "refresher-course" in packaging. Get free copies now for all key men in your distribution departments. Write . . .

***HINDE & DAUCH,* Executive Offices: 4330 Decatur Street, Sandusky, Ohio**

FACTORIES in Baltimore • Boston • Buffalo • Chicago • Cleveland • Detroit • Gloucester, N. J. Hoboken • Kansas City • Lenoir, N. C. • Montreal • Richmond • St. Louis • Sandusky, Ohio • Toronto

# ALOYCO IS THE NAME FOR PERMANENTLY CLEAN FLUID CONTROL!

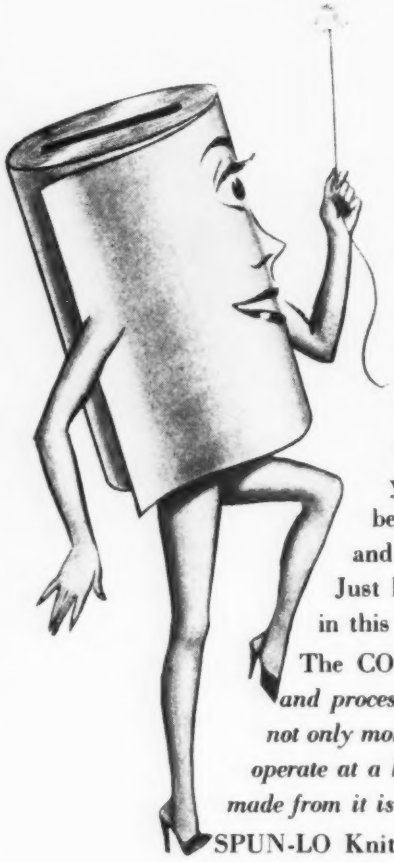
**ALOYCO** Stainless Steel Valves and Fittings are better than an insurance policy against shutdowns in fluid lines. They help to keep production at peak in the vital chemical, process and food industries by preventing corrosion, stain and contamination.

The recognized superiority of Aloyco Stainless Steel Valves and Fittings is due to concentration on this one type of product. Stainless Steel Valves and Fittings are not *part* of the Aloyco line — they are the *entire* line. They do not receive *part* of the attention of our engineering and production department — they receive *all* of it. We make a wide range of styles and sizes in all standard stainless steel analyses.

Although our facilities are allocated 100% to essential war production these days, we are always glad to discuss post war applications with those who are mapping the industrial pattern of the future.

**ALLOY STEEL PRODUCTS COMPANY, INC.**
1300 WEST ELIZABETH AVENUE — LINDEN, NEW JERSEY

# Babes from the Wood...



LITTLE Miss Spun-lo Knit Rayon Cloth and little Master "Continuous Process" Rayon Yarn are truly babes — and truly from the "wood" (or the cellulose from wood pulp, to be exact).

Rayon, as an industry, is barely 50 years of age. Just compare that with Rayon's sister textile industries — cotton, wool, linen, silk. They go back to the dawn of history, when man first learned to plait a fiber and fashion from it a cloth to wear.

Rayon has had but a few years for improvement — and you know to what good advantage this brief span has been put. New yarns, new cloths, new weaves, new fabrics — all made possible because Rayon is man-made and man-controlled from start to finish, and not subject to the vicissitudes of Nature as are natural fibers. Just look at what we of Industrial achieved in product improvement in this short space of time:

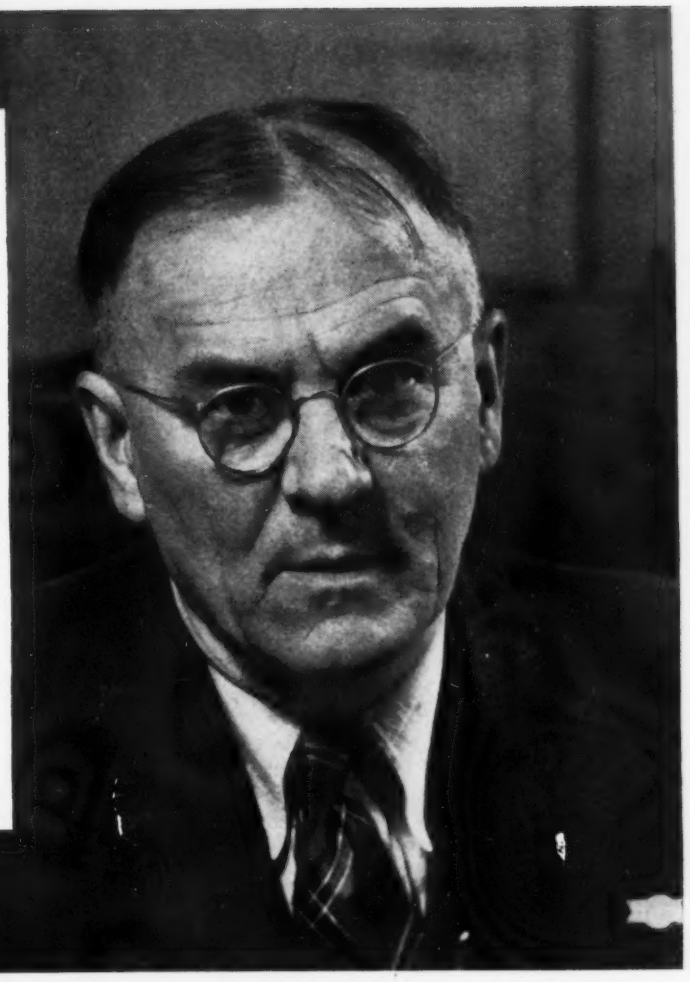
The CONTINUOUS PROCESS *for yarn production — a method that spins and processes yarn continuously, as a single thread. The resultant product is not only more uniform, but is so free of knots and broken filaments, that mills can operate at a higher rate of efficiency with lower production costs. And the cloth made from it is more uniform and dyes more evenly.*

SPUN-LO Knit Cloth — *created a standard for knit underwear fabrics where none had existed before. Produced from basic raw material to finished fabric under one roof, it is controlled every step of the way — it is the same today as yesterday or tomorrow. Dependable quality for manufacturer, retailer and consumer.*

War time has greatly stimulated the uses of rayon in dozens of fields. Watch Rayon convert these findings to peace time needs, and add others from the bottomless well of scientific achievement.

**Industrial**
**RAYON**
**CORPORATION**
★
**Cleveland, Ohio**
**New York Office: 500 Fifth Ave.**

# "We could lose this War between 5 p.m. and 7 a.m."



***JOHN BLAZEK, the author of this remarkable statement, is the production manager of a war-material plant in a midwestern city.***

"I'M no pessimist. But I'm telling you the hours between sunset and sunrise can be the most critical hours of this war. Not on the battlefronts, but in the factories and shops where they're making the things our boys must have to win the final victory.

"My factory has been working on important war contracts. Daytime production was as good as could be expected. But night production was 40% behind schedule. The employees worked just as hard. They seemed more tired than the day crew. But they weren't making the grade.

"I knew a dozen things might be wrong, but I had an idea one trouble might be the lighting. So I called in a lighting man and put it up to him.

"He made a careful study. Then he showed me what *was* wrong with the lighting, particularly as it affected the night workers. I was willing to try *anything* that might help, so we made the changes he recommended. Today, under the new improved lighting, our night shift workers are running neck and neck with the rest.

"I don't know how many other plants have been having this same trouble. But if production generally is lagging behind on the night shifts—those hours between 5:00 P. M. and 7:00 A. M.—*we could lose this war.* Unless we do something about it right away.

"As one production man to another, all I know is, if you're having night shift trouble, one thing you'd better check up on is your lighting. It may help you. It certainly helped us."

☆ ☆ ☆

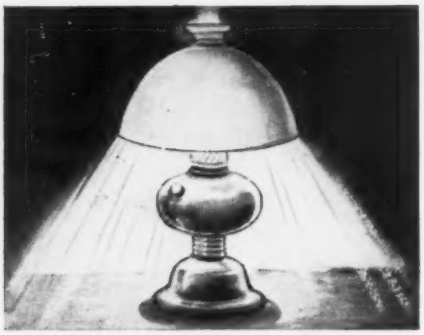
*If you are running a war factory, won't you have your lighting checked? Call the nearest G-E lamp office. Or see your electric service company or your G-E lamp supplier. Or write General Electric Company, Nela Park, Cleveland, Ohio.*

G-E MAZDA LAMPS

GENERAL ELECTRIC

# RAYON REPORTS

*Presented monthly by American Viscose Corporation, New York, N. Y.* APRIL, 1943



**BETTER LIGHT!** Perhaps you thought that the kerosene lamp was a thing of the past. But such is not the case—not by a long shot. Such lamps still provide the sole source of nighttime illumination in thousands of homes without electricity. For over a decade, continuous filament rayon yarn has been used successfully in the incandescent mantles for these lamps, used in conjunction with ramie and other natural fibers. Recently the shortage of the latter fibers led to investigation of possible replacement materials by one of the country's largest incandescent mantle manufacturers. "Avisco" spun yarns proved ideal. The characteristics of these yarns, it was determined, improved the ceramic structure of incandescent mantles and enabled them to throw more even light. Several thousand pounds of "Avisco" yarns are now being delivered monthly to mantle manufacturers for this use.

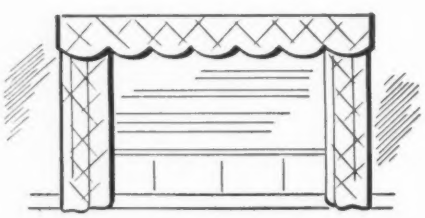
**STANDARDIZED NAMES**—The British Rayon Council recently recommended a unification of terminology in the rayon trade, and suggests the following terms:

| STANDARD TERM | DEFINITION |
|---|---|
| Rayon Yarn | Continuous filament rayon yarn |
| Rayon Fabrics | Fabrics made from rayon yarn |
| Rayon Waste | Waste from rayon yarn |
| Rayon Staple | Rayon staple fiber |
| Spun Rayon Yarn | Yarn spun from rayon staple |
| Spun Rayon Fabrics | Fabrics made from spun rayon yarn |
| Spun Rayon Waste | Waste from rayon staple and from spun rayon yarn |

We think that the adoption of such terms would help to avoid confusion.

**LOOK OUT BELOW**—American fighters have a useful ally—and America's enemies a formidable foe—in the fragmentation bomb. These bombs are anti-personnel bombs dropped at low altitudes for sure results. In order to give plane pilots time enough to get away from the exploding bombs, rayon parachutes are used. Rayon is of value here because of its great strength. This characteristic makes rayon valuable for similar uses in cargo parachutes, and in tow targets on which fledgling aerial machine gunners practice hitting Japanazis.

**MORE NEW USES**—Constant laboratory research and experimental work on rayon staple—much of it conducted long before the war—is proving priceless today. This work has made it possible for rayon staple to be used with complete satisfaction in many products formerly made with natural fibers, of which there are now shortages because of the war. In some cases, rayon has proved superior to natural fibers formerly used. Some of the most recently developed uses include: mittens and gloves, shoe fabrics, babies' diapers, interlinings for men's suits and Army officers' uniforms, and sweaters that formerly were made from fine cashmere and angora wools.



**"CROWN"* TESTED CURTAINS**—Having successfully met the "Crown" Tested Plan requirements, Queen Valley Fabrics, Inc., manufacturer of "Queentex" curtains, has been licensed as a manufacturer and finisher of "Crown" Tested rayon window curtains under the "Crown" Tested Plan of the Corporation. This company is one of the country's largest manufacturers of rayon window curtains and is unique in that it possesses facilities for handling the complete processes of manufacturing from yarn to finished products. Curtain fabrics are produced on the company's own looms and are then finished and tailored in its own plants. This means that the quality of their products can be controlled at every step of the manufacturing process.

**RAYON IN WORK CLOTHES**—The recent WPB order M-207, which established tighter restrictions on fabrics for use in women's work clothing, has been subject to some misinterpretation, particularly in connection with its reference to the use of rayon and rayon mixture fabrics for such clothing. The order did not prohibit the use of rayon fabrics in women's work clothing, as has been reported in some quarters. What it did state was that the A-2 priority rating formerly applicable to rayon fabrics for use in women's work clothing could no longer be used. Rayon and rayon mixture fabrics can still be used in work clothing and are being used in important quantities in this field. Manufacturers of such garments, however, can no longer buy such rayon fabrics as priority items.

Daily News Record, in explaining the order, wrote: "It is explained that the fabrics listed from the order by the amendment, including rayons and rayon mixtures, are removed, not because they are considered unsuitable for women's work clothes, but because they are needed for other essential uses."

*Reg. U. S. Pat. Off.

Copr. 1943—American Viscose Corp.

**4-PLY SERVICE...**

*Fiber research* helps you get the right yarns; *fabric development* helps you design new fabrics; *The Textile Unit* helps you solve mill problems; and CROWN Tested gives you scientific performance facts on finished fabrics containing CROWN Rayon—are all part of our 4-PLY SERVICE. All are designed to help you make the best possible use of the available yarns and fibers. Make use of the 4-PLY SERVICE!

AMERICAN VISCOSE CORPORATION

*Producers of* CROWN* *Rayon Yarns and Staple Fibers*

*Sales Offices:* New York, N. Y.; Charlotte, N. C.; Providence, R. I.; Philadelphia, Pa.

*Plants:* Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, W. Va.; Meadville, Pa.; Front Royal, Va.

When Yank Rangers go into action—their days of grim and arduous practice and experimenting *are behind them*. And when Dayco Worsted Cots go into action on the spinning frames of America—their days of "practice" and experimenting *are behind them*.

There is no substitute for, and no short cut to, experience. And dating back 17 years is Dayton's "*know-how*" in the pioneering and development of synthetic materials for printers' rollers, tires and industrial V-Belts.

It was that long and hard-won synthetic "*know-how*" that resulted in Dayco Worsted Cots setting a new standard of performance and durability. Furthermore, that same peacetime pioneering in synthetics by Dayton has, since 1938, helped the Textile Industry serve our nation with unprecedented production of uniform high-standard yarn with less down time and maintenance costs.

**DAYCO WORSTED COTS**
**PIONEERED, ENGINEERED AND PROVED BY ACTUAL MILL SERVICE**

1. Last up to 12 times longer.
2. Save time, money and power.
3. Uniform and non-varying.
4. Won't groove—have no bumps or hollows.
5. Won't chip out—need no aging.
6. Require less tension—eliminate resets after shut-downs.
7. Easily and quickly applied to the arbors.
8. Guaranteed not to come loose from the rolls.

THE DAYTON RUBBER MFG. CO.
DAYTON, OHIO

*HOME PLANT, TEXTILE PRODUCTS DIVISION*
WAYNESVILLE, NORTH CAROLINA

*The Originators and Pioneers of Dayco Tempered Roll Coverings*

MAIN SALES OFFICE
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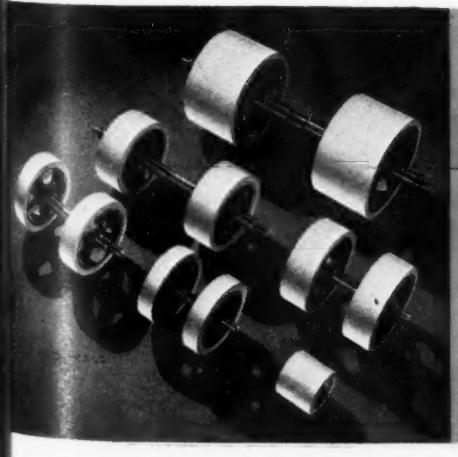
*EXPORT DIVISION*
DAYTON RUBBER EXPORT CORPORATION
38 Pearl Street New York, N. Y. U. S. A.

***THROW YOUR SCRAP INTO THE FIGHT!***
**BUY WAR BONDS AND SAVINGS STAMPS**



**Dayton**
*Thorobred* TEXTILE PRODUCTS
**Dayco** WORSTED COTS—LOOM SUPPLIES
MADE BY THE WORLD'S LARGEST MANUFACTURER OF V-BELTS

# WE FOUND right in

## A WARTIME MESSAGE *that gives new meaning to the old adage* "A STITCH IN TIME"

### the WHY and HOW of conserving RAYON

MORE RAYON is being produced than ever before! Yet rayon must be conserved—*because it has become increasingly important for war uses*...for 'chutes, uniforms, bomber tires, bullet-proof airplane tanks. And in addition many of the basic ingredients of rayon are now also used in making vital materials of war.

So, you see, rayon *can* help us win this war!

And how can you—and thousands of other women—make your rayons last longer and wear better? By taking better care of the rayon you have. By remembering that your "stitch in time" may be a small—but absolutely essential—part of winning this war. To refresh your memory, here is a handy list of hints on expert rayon care.

*Smart* **BUYING** *comes first...*

**1.** Plan ahead...don't wait until your buying becomes an urgent necessity. Take a little extra time to compare not only prices, but quality. In general, the closer the weave or knit, the more durable the fabric. Hems should be ample, seams wide and finished off to prevent raveling; stitches close and regular.

**2.** Look for The Label on everything you buy. Is the fabric washable? Is "dry cleaning only" recommended? Which better in the case, let the label guide you when the time comes for a trip to the laundry or dry cleaner. Learn the various types of rayon: acetate, viscose and cuprammonium, and their characteristics and care.

**3.** Buy your correct size...always try on the garment. Remember it's easy to take a tuck where necessary, but there's no remedy for a slip or dress bursting at the seams. See that the garment fits smoothly, but has enough fullness for comfort and ease in action.

**4.** Choose your clothes with an eagle eye to their suitability. The secretary, the busy war worker will do her best work in clothes of classic simplicity, readily interchangeable with dickeys, lingerie or touches of glitter for after-five dates. It's wise, today, to buy clothes that will look smart two or three seasons hence.

**5.** Buy two or more pairs of hosiery at the same time...in the identical shade and weight so that one stocking worn out won't mean two thrown out. Proportioned length (which means the right length for your leg), assures that the garter will fasten into the sturdy welt at top. Select your correct foot size every time; ill-fitting hosiery is uncomfortable, shortlived and detrimental to foot health. Wear sheer stockings for dress-up, medium for every day, and heavy for sturdy use.

*And then comes* **careful WEARING!**

**1.** Here, too, as in buying, plan ahead! Keep each garment in apple pie order—so that you can start off each day with a fresh change of clothes while the previous day's wear is hanging out free of wrinkles.

**2.** Cultivate the friendly habit of changing from your street or office clothes to an attractive house dress. It's good for you, and saves wear and tear on your rayons.

**3.** Shields offer excellent protection from perspiration stains. And when you use an anti-perspirant, always follow the directions. Don't spray perfumes directly on fabrics.

**4.** Handle your stockings like the treasures they are! Roll hose down to the toes, then draw them up gently. Keep toenails pared and fingernails smooth to prevent catching threads. Turn your rings toward the palm of your hands or better yet, remove them when handling your hosiery.

*Proper* **WASHING** *and* **DRY CLEANING** *are important*

**1.** Look to the label for advice. If your dress is washable, the tag will generally give you detailed instructions. Always be sure to follow them accurately.

Lingerie and hose are easily washable, of course, and should be rubbed daily. But don't try washing rayon if "dry cleaning only" is recommended.

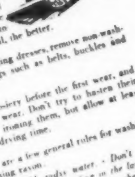
**2.** Don't allow garments to remain soiled. Treat a stained dress as you would appendicitis—the sooner attended to the better, by a professional.

**3.** When washing dresses, remove non-washable trimmings such as belts, buckles and buttons.

**4.** Wash hosiery before the first wear, and after each wear. Don't try to hasten their drying by ironing them, but allow at least 24 hours drying time.

**5.** Here are a few general rules for washing and ironing rayon:

Wash in mild suds; water - Don't soak garments, as long standing in the laundry water tends to "grey" delicate shades. - Avoid hard rubbing and wringing. - Rinse thoroughly in lukewarm water. - Rinse over-ripe-starch in lukewarm water. - Avoid overheat from heat and strong sunlight. - Dry where ever possible on the reverse side to prevent "iron" marks. Use a moderately warm—never HOT—iron. (With a heat-controlled iron, see the indicator at "low" or "rayon".)



**EXTRA HINTS** *for conserving rayon*

**1.** Give first aid promptly to rips, seams, loose buttons, slipping hems. Keep a well-stocked mending kit on hand. Visit the Notion Department of your favorite store and get acquainted with all the new mending supplies and gadgets; mending tape, for instance, to be pressed over a split or tear. What you can't mend yourself, leave to the professional.

**2.** Don't snip off snagged threads in hosiery. You can prolong the life of your stockings by using the repair or re-dying service available in so many shops.

**3.** Add new life to washed-out hosiery, gloves and undies by tinting them. Be sure to follow the directions on the dye package. Many garments are no longer wearable, simply because all zippers, buttons, snaps and hooks are missing.

**4.** Protect your clothes from dust and moth spots by putting your "date" down on them.

*May we say* **ONE WORD MORE!**

These simple rules are the best insurance against shoddy rayon you can know. You'll find it easy to practice such conservation. And "a stitch in time" we can still be the best-dressed women in the world. Moreover our soldiers are the best-equipped fighting men. Our conservation can help bring victory and keep up morale—our conservation can help bring victory and keep up morale—our conservation can help bring victory and keep up morale—

# OUR WARTIME PROGRAM

## *in our own backyard*

**Our 7-year policy of Informative Labeling and Tested Quality now swings into step with the national program of Apparel Conservation. This double spread in April GOOD HOUSEKEEPING leads the way.**

The demand for factual information about rayon is nothing new. American women have been eager to find out what to buy and how to care for it for years. And women have welcomed the Tubize Certified Quality Label as a reliable guide in buying their rayon lingerie and dresses.

Today, war has lifted apparel conservation from a casual economy to a patriotic duty. Rayon *must* be conserved for wartime uses... the women of America know this and are ready to cooperate.

So Tubize now steps up its successful, 7-year-old program to meet the wartime tempo. We gathered conservation information from every possible source; we had it checked and checked again by experts. Then, through our national advertising, we make this information available to millions of women, telling them how they can make the rayon apparel they buy or own wear better and last longer.

This wartime extension of the Tubize program means much to you who make and sell Rayon Apparel:

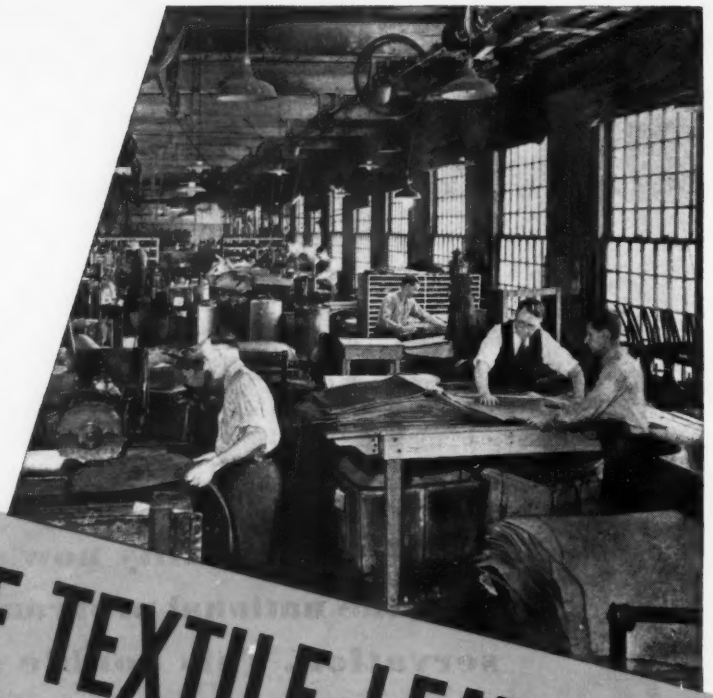
1. *It gives the merchandiser, operating in restricted markets, a known guide in selecting the rayon merchandise he buys.*
2. *It gives the retail salesgirl, rushed and harassed as she is, quick, authoritative hints to pass on to her conservation-minded customers.*
3. *It gives the consumer herself, aware of the need for conserving rayon, valuable advice on the wear and care of her lingerie and dresses made of Tubize Rayon.*

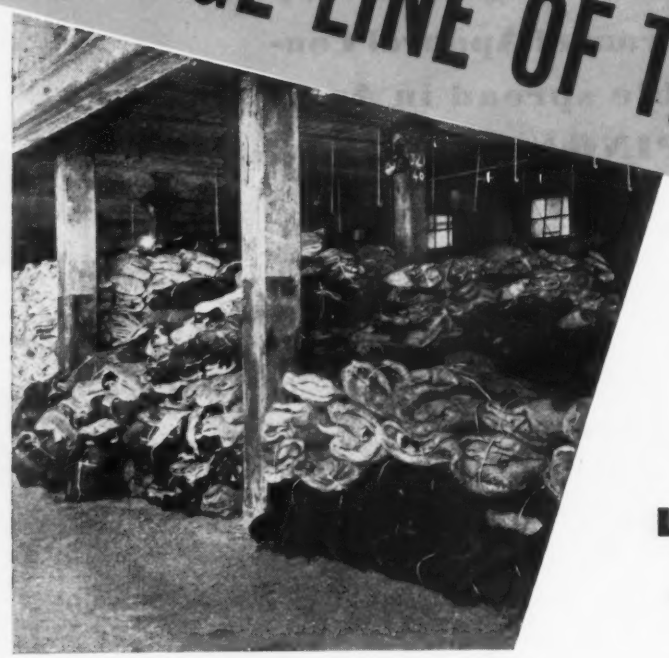
Seven years ago we began advising shoppers to "Take a Tip from the Tag."
MADE OF TUBIZE fine lingerie rayon
the best care for
● Avoid perspiration damage... attach shields and change them frequently.
● Don't spray perfume directly on your clothes.
● A daily change will keep your dresses wrinkle-free.
● Use shoulder covers and garment bags in your closet.
● Fresh air your clothes occasionally... but not in strong sunlight which tends to fade delicate shades.
● When pressing: Use a warm iron, with a heat-controlled iron, set the indicator at "RAYON" or "LOW"... and ...press on reverse side. The most satisfactory results will be obtained if this garment is DRY CLEANED.
Today more important than ever we say "Take a Tip from the Tag—Save Rayon."

**THE TUBIZE CHATILLON CORPORATION • 2 Park Ave., New York • Acetate & Viscose Rayon Yarns & Fabrics**

# The...

# ORANGE LINE OF TEXTILE LEATHERS





## Better Performance — Lower Costs — from the line tanned and manufactured under single control...

When you equip your looms with leathers from Graton & Knight's ORANGE LINE, you can be sure you are getting products each made — from green hide to final inspection — with its ultimate use in mind. Leather for "Pickmaster" pickers is finished one way — for "Two-Fold" check straps another way — and so on.

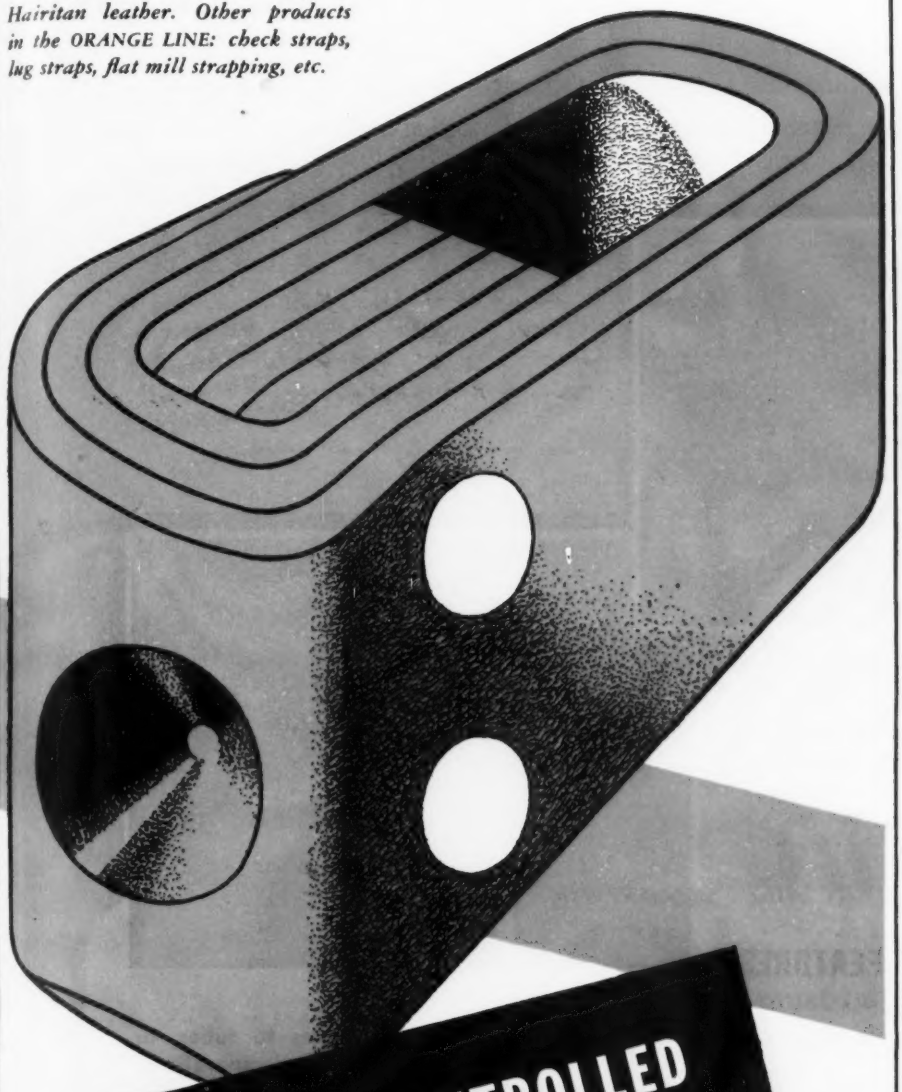
Graton & Knight tans its own leather, and has developed more than 30 variations of five basic formulas. Each step in the manufacturing process is planned according to the qualities desired in the finished products.

The ORANGE LINE is built around Graton & Knight's famous "Hairitan" loom leathers — made from a superior type of leather which has been acknowledged equal or superior to any "hair-on" leather ever tanned in this country or abroad. "Hairitan" weighs less — has greater tensile strength. It has low stretch — extremely high resilience. All these add up to lower maintenance and longer life.

All "Hairitan" products are identified by orange color on the flesh side. Items with hair-off are orange-colored all over. When you see orange color on leather, you can be sure it's the best for textiles, tanned and finished for a single purpose — under a single quality control.

**the ORANGE LINE** *ONE QUALITY CONTROL FROM HIDE TO LOOM*

*Graton & Knight PICKMASTER, with the "Life Saver" hole. Made from Hairitan leather. Other products in the ORANGE LINE: check straps, lug straps, flat mill strapping, etc.*



**QUALITY-CONTROLLED FROM GREEN HIDE TO FINISHED PRODUCT**

# GRATON & KNIGHT CO.

WORCESTER — GRATON AND KNIGHT — MASSACHUSETTS

**Supplied by the leading Distributors to the Textile Industry ... see adjoining column (also listed in THOMAS' REGISTER).**

## DISTRIBUTORS

*of the*

## "ORANGE LINE"

•

**ALABAMA**

Birmingham — The Young & Vann Supply Company

Mobile — McGowin-Lyons Hdwe. & Supply Company

•

**GEORGIA**

Atlanta — Fulton Supply Co.

Columbus — Columbus Iron Works Co.

Rome — Battey Machinery Company

•

**LOUISIANA**

Monroe — Weaks Supply Company, Ltd.

New Orleans — Standard Supply & Hdwe. Company, Inc.

•

**NORTH CAROLINA**

Charlotte — The Textile Mill Supply Co.

•

**SOUTH CAROLINA**

Charleston—The Cameron & Barkley Co.

Greenville — Hugh Black

•

**TENNESSEE**

Jackson — Southern Supply Company

Knoxville — Tennessee Mill & Mine Supply Company

Memphis — Lewis Supply Company

Nashville — Keith, Simmons Co., Inc.

•

**VIRGINIA**

Lynchburg — Barker-Jennings Hdwe. Corporation

Newport News — Noland Company, Inc.

Norfolk — Taylor-Parker Company, Inc.

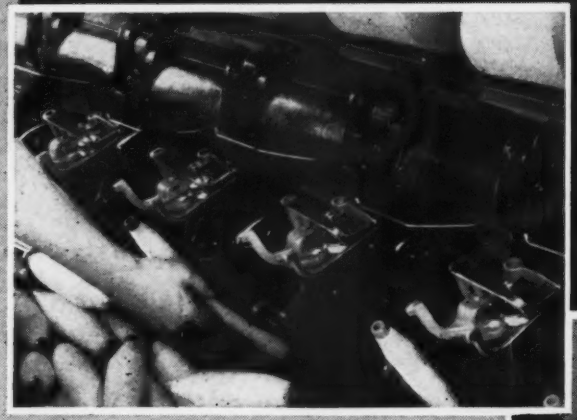
Richmond — Industrial Supply Corp.

Roanoke — Noland Company, Inc.

# A 7 WAY FLEXIBILITY-PLUS!

The seven points of flexibility in the Foster Model 102 winder are sufficient buying reasons for almost any mill in these days of sudden conversion and an uncertain future. Nevertheless this machine offers PLUS advantages, including operating convenience which contributes to TWICE THE PRODUCTION WITH 1/3 LESS COST, as compared with older models.

★ ★ ★



*For example, the empty-bobbin conveyor is BELOW the bobbin pins, so that the operator merely drops the bobbins when doffing; no lifting up, around or over.*

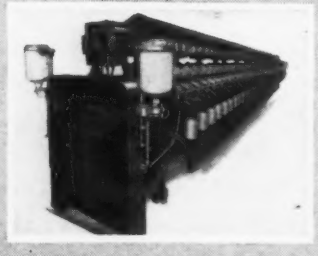
*The conveyor also runs UP at the end of the machine so it can discharge DIRECTLY into a standard sized truck. No small boxes, no re-handling. New machines may be equipped with double conveyors so that when different bobbins are used on each side of the machine they will not be mixed.*

## THE 7 FLEXIBILITY FEATURES

1. Any kind or count of staple yarn.
2. Any outside taper of straight or convex base cones.
3. 9 different angles of wind from 9° to 18°.
4. Will wind package dyed yarn even if damp.
5. May be equipped with emulsion attachments.
6. Changeovers from cones to tubes, or vice versa, simple and comparatively inexpensive.
7. One side tubes and other side cones, if desired.

*Let Model 102 Flexibility prepare you for the future.*

**FOSTER MACHINE CO.**
**WESTFIELD, MASS.**
*Southern Office*
Johnston Bldg., Charlotte, N. C.



# FOSTER MODEL 102

**FOR WINDING COTTON, MERCERIZED, WOOLEN, WORSTED, MARINO, SPUN SILK AND SPUN RAYON YARNS**

TURNING WAR-TIME PROBLEMS INTO PROCESSING PROGRESS

FOR EXAMPLE, HOUGHTON RESEARCH ON

# RAYON PROCESSING

Rayon is holding the home front today for silk and nylon which have gone to war. ★ To fit rayon yarns for their new duties, processing must be carefully checked and revised. ★ Houghton development work has resulted in a new sizing agent (Houghto-Size) superior to glycerin for filament rayon and acetate. ★ Proven softening oils under our Raylubric brand are also widely used. ★ Ask the Houghton Man, or write to—

**E. F. HOUGHTON & CO.**

303 West Lehigh Avenue, Philadelphia
1301–05 West Morehead Street, Charlotte

TODAY— MORE THAN EVER, EXPERIENCE COUNTS!

HOUGHTON
PRODUCTS FOR THE TEXTILE INDUSTRY

# Sturtevant Systems

REG. U. S. PAT. OFF.

AND EQUIPMENT

ENGINEERED FOR PRECISION-VENTILATING, HEATING, AIR CONDITIONING, DRYING, DUST AND FUME CONTROL, PNEUMATIC CONVEYING, MECHANICAL DRAFT

# h *Bad Breath* get by . . . in 194V?

**IT IS NO IDLE DREAM that after this war every plant must pay more attention to indoor air. In the miracles that America's industrial production is performing lies a lesson for any far-seeing business executive.**

Think of the countless new plants that have been completely air conditioned. Whether for 'plane engines or range finders, gas tanks or uniforms, Sturtevant Equipment has gone in, not for employees' comfort alone, but to turn out war goods faster, cheaper, more efficiently.

**In aircraft engine factories,** for example, plant weather is *ideal* for production, *consistent* for machining parts that must be the same as yesterday's and tomorrow's. As a result, absenteeism as well as scrapage is held to a minimum. In the manufacture of ultra-precision range finders, air conditioning makes possible assembly and test adjustments within tolerances never realized before—*a millionth of an inch.*

**In weaving wool fibres** into uniforms, air conditioning eliminates troublesome static sparks . . . maintains quality and weight that meet strict Government "specs". In making self-sealing gas tanks, air conditioning is on the job to carry off toxic solvents and eliminate the static sparks that might explode them.

**And a thousand more products,** each with a special reason why Sturtevant Air Conditioning went to work. Remember all of this modern plant space will still be in the picture after the war. And any manufacturer who is going to compete without *controlled indoor air* will be at a decided disadvantage.

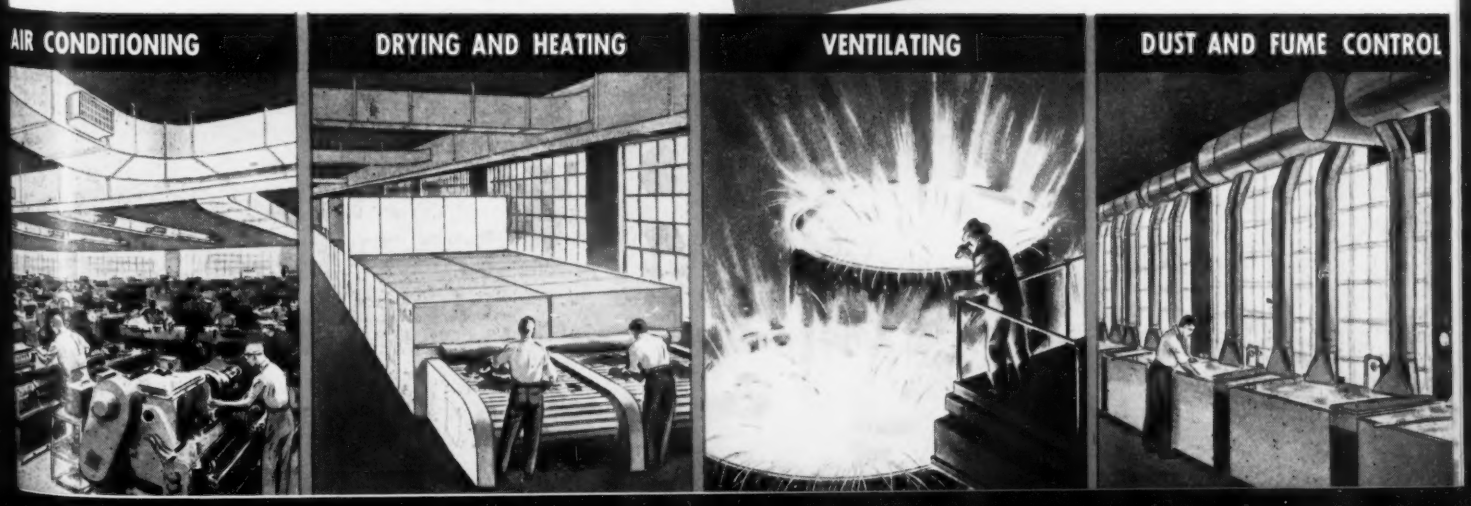
**ENGINEERED AIR will make a difference . . .**

Yes, in our post-war world, air will make the difference between profit and loss in many a plant—controlled air, engineered to serve efficiently—in all phases of industrial air conditioning, heating, ventilating, drying, dust and fume control, pneumatic conveying, and mechanical draft. And with new war-won knowledge, backed by experience as the pioneer in air-handling, Sturtevant will make available to you *engineered systems and equipment* that "Put Air to Work" with utmost efficiency and economy.

B. F. STURTEVANT COMPANY
*Hyde Park, Boston, Mass.* *Branches in 40 Cities*
B. F. Sturtevant Company of Canada, Ltd., Galt, Toronto, Montreal

**STURTEVANT—FOUNDER OF THE AIR HANDLING INDUSTRY**

**Sturtevant**
REG. U.S. PAT. OFF
*Puts Air to Work*



# RE-LIGHTING

## *the new* manpower / production *requirement*

OPERATION STUDY SHEET

Working Conditions *Light glare, causing hazardous working conditions – high accident rate on this section delays — new worker*

Machine No. *340*

Capacity —

Size —

Department *N-32*

## *Vital to accident-rate reduction*

Glaring or insufficient light that makes seeing difficult is one of the principal reasons for lost-time accidents. *Re-lighting* your plant will help you save many of these man-hours of production, particularly on your night shifts.

Most plants operating today were designed and built for peacetime, daylight working schedules. *Lighting based on daylight conditions is inadequate to serve the needs of night workers.*

Re-lighting does not mean discarding your present lighting system. It merely means increasing the efficiency of your present equipment by re-locating lamps to eliminate glare and shadow, increasing lamp wattages where necessary, or installing additional equipment to insure uniform lighting levels. A Silv-A-King lighting engineer can tell you exactly what you need and how little re-lighting will cost.

Silv-A-King has specialized in industrial lighting for 22 years. Silv-A-King quality equipment (fluorescent or incandescent) plus a Silv-A-King "engineered layout" makes an unbeatable combination.

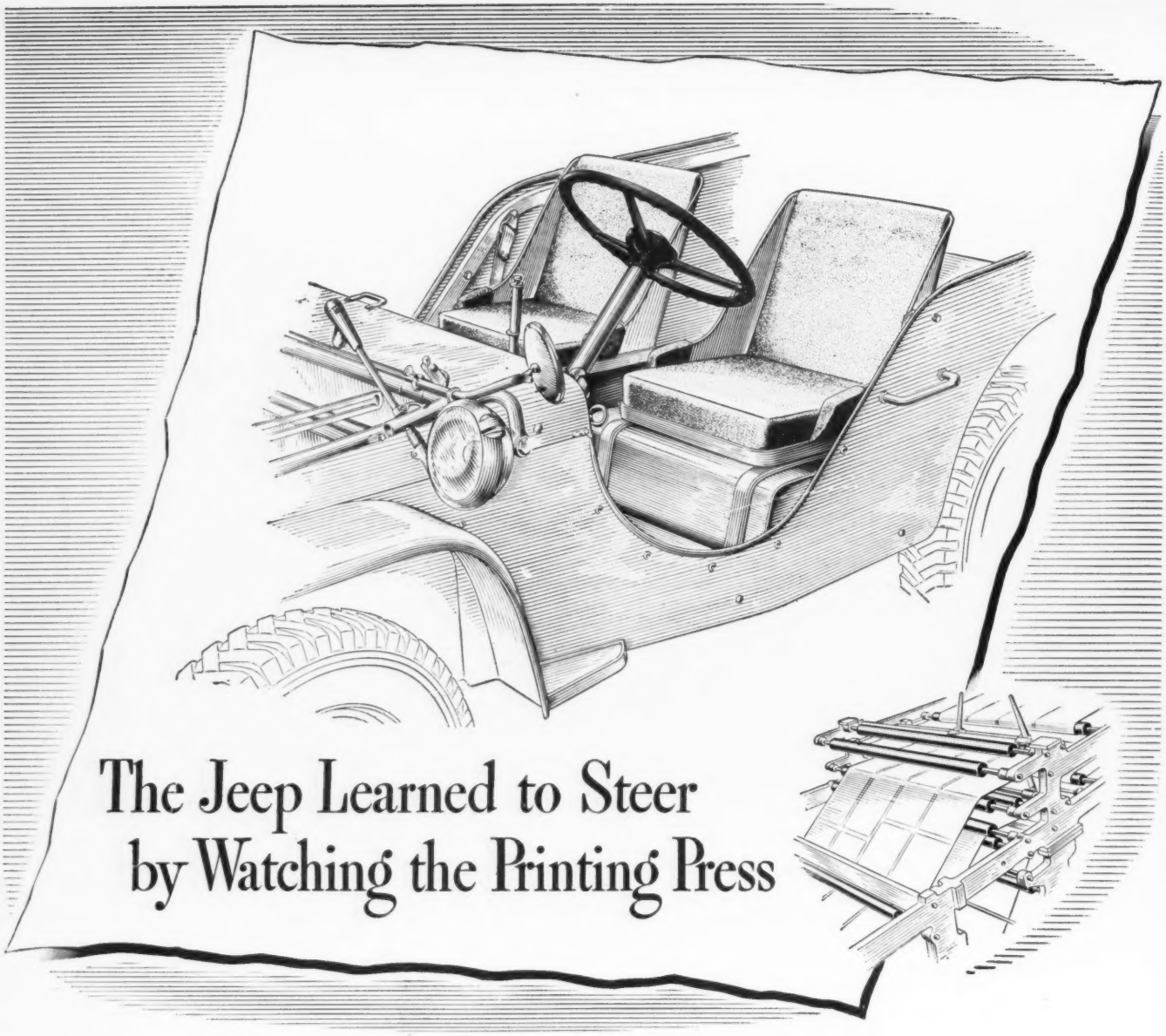
*Send for your copy of our 16-page book: "Light Is An Essential Production Tool"*

BRIGHT LIGHT REFLECTOR COMPANY, INC.
*306 Morgan Avenue, Brooklyn, N.Y.*

SILV-A-KING

**SILV-A-KING MAKES *Light* WORK FOR YOU**

The Machine Method of manufacturing needles was developed by Torrington engineers to establish a new standard of values – in fineness of temper, smoothness of finish and uniformity of overall dimensions. It was a revolutionary departure from traditional methods. From the selection of the steel to the last polishing operation, each step was planned and organized to achieve the greatest benefits from automatic machine control. New machines and special equipment were designed by and constructed under the supervision of Torrington engineers. That the result was successful – a triumph of precision engineering – is proved beyond doubt by the fact that today the needles in the red and green box are recognized throughout the knitting industry as the "quality" needles – the needles that can be relied upon to give long service and produce fine knitting. In these days particularly, when saving time and conserving yarn are of the utmost importance, *your* knitting will benefit by the *machine-made* quality of Torrington needles.
1000 Spring Beard Knitting Needles The Torrington Company Torrington, Conn., U.S.A.
1000 SPRING BEARD NEEDLES
Torrington Spring Beard Needles
SINKERS • DIVIDERS SPLIT DIVIDERS



# The Jeep Learned to Steer by Watching the Printing Press

IT'S TOP-SPEED operation hour after hour in a printing press—no leeway for breakdowns that might delay the newspaper on its way to the waiting delivery trucks. So printing press makers picked the Torrington Needle Bearing for its ability to operate successfully in high-speed service, with little need of attention.

There's no question of high speeds in the steering column of a jeep, of course . . . just an occasional turn through a fraction of a revolution. But that point of long life with little attention looked just as good to the jeep builders as it did to the press manufacturers. They, too, turned to the Needle Bearing, not only for its ability to stand up in severe service, but for its low friction coefficient that gives quick response to the steering wheel, its small size that contributes to compact design, its effective system of lubrication, its ready availability for all essential applications.

***THERE'S A THOUGHT HERE FOR YOU TO CONSIDER*** when you start the design of your post-war products. Whether your problem is one of oscillation or of high-speed rotation, the Torrington Needle Bearing will give your customers the advantages of dependable operation, efficient lubrication, low starting and running friction. And of course, *you* will benefit by the Needle Bearing's low cost and ease of installation. You can get the preliminary information you will need by writing for Catalog No. 116, which lists sizes, rates, and typical applications—and Torrington engineers will assist you in working out specific service problems.

**THE TORRINGTON COMPANY**
*Established 1866* • Torrington, Connecticut, U. S. A.
*Makers of Needle and Ball Bearings*
New York Boston Philadelphia Detroit
Cleveland Seattle Chicago San Francisco
Los Angeles Toronto London, England

LET'S GO! U.S.A. KEEP 'EM FLYING!

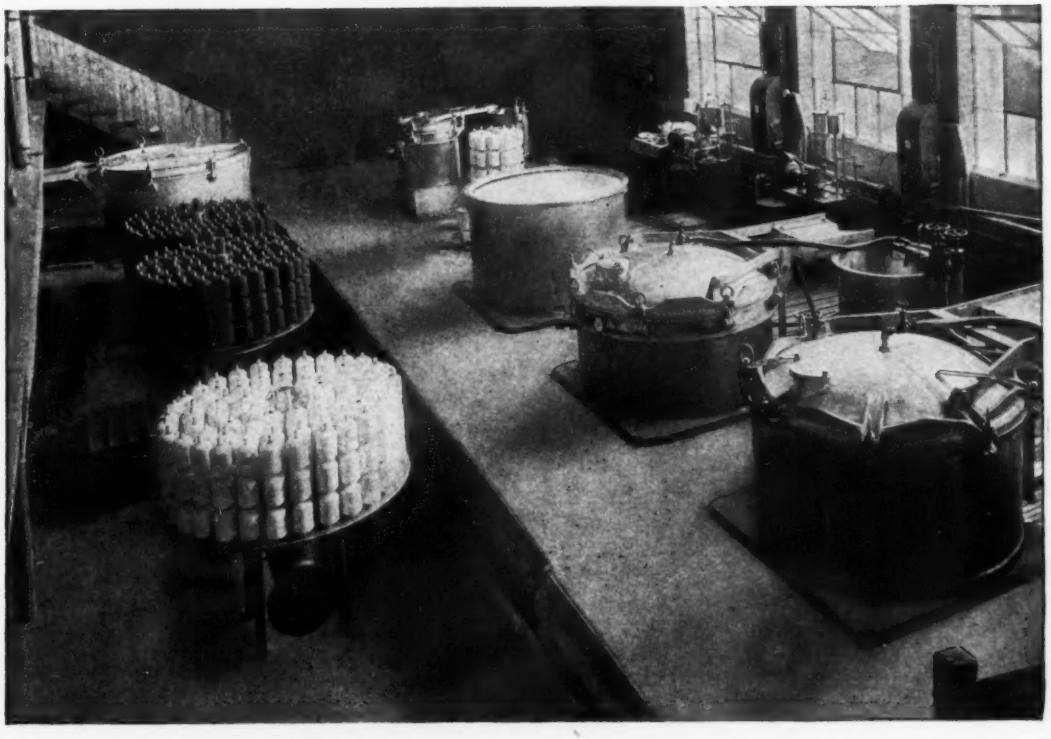
## TORRINGTON NEEDLE BEARINGS

***KEYED TO TODAY'S NEEDS***

***AND TOMORROW'S TRENDS***

# Obermaier

REG. U.S. PAT. OFFICE



*Package Dyeing Installation, Extracting and Drying in a complete cycle on the same material carrier*

*Builders of*

**Cotton & Wool Dyeing Machines**

*for*

**Beams • Packages • Rawstock • Skeins**

**Centrifugal Extractors and Driers • Centrifugal Pumps**

**Rayon Cake Dyeing Machines • Dye Spindles and Perforated Tubes**

STAINLESS STEEL CONSTRUCTION

*All Subject to Required Priorities*

☆

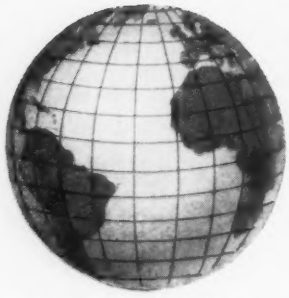
## Standard Fabricators

INCORPORATED

355 WALTON AVENUE • • • NEW YORK, N. Y.

REPLACEMENT PARTS FOR EXISTING MACHINES CAN BE FURNISHED

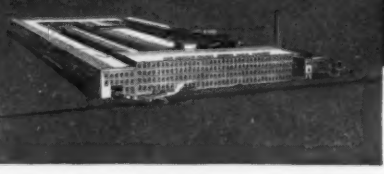
# WE'RE PASSING THE AMMUNITION



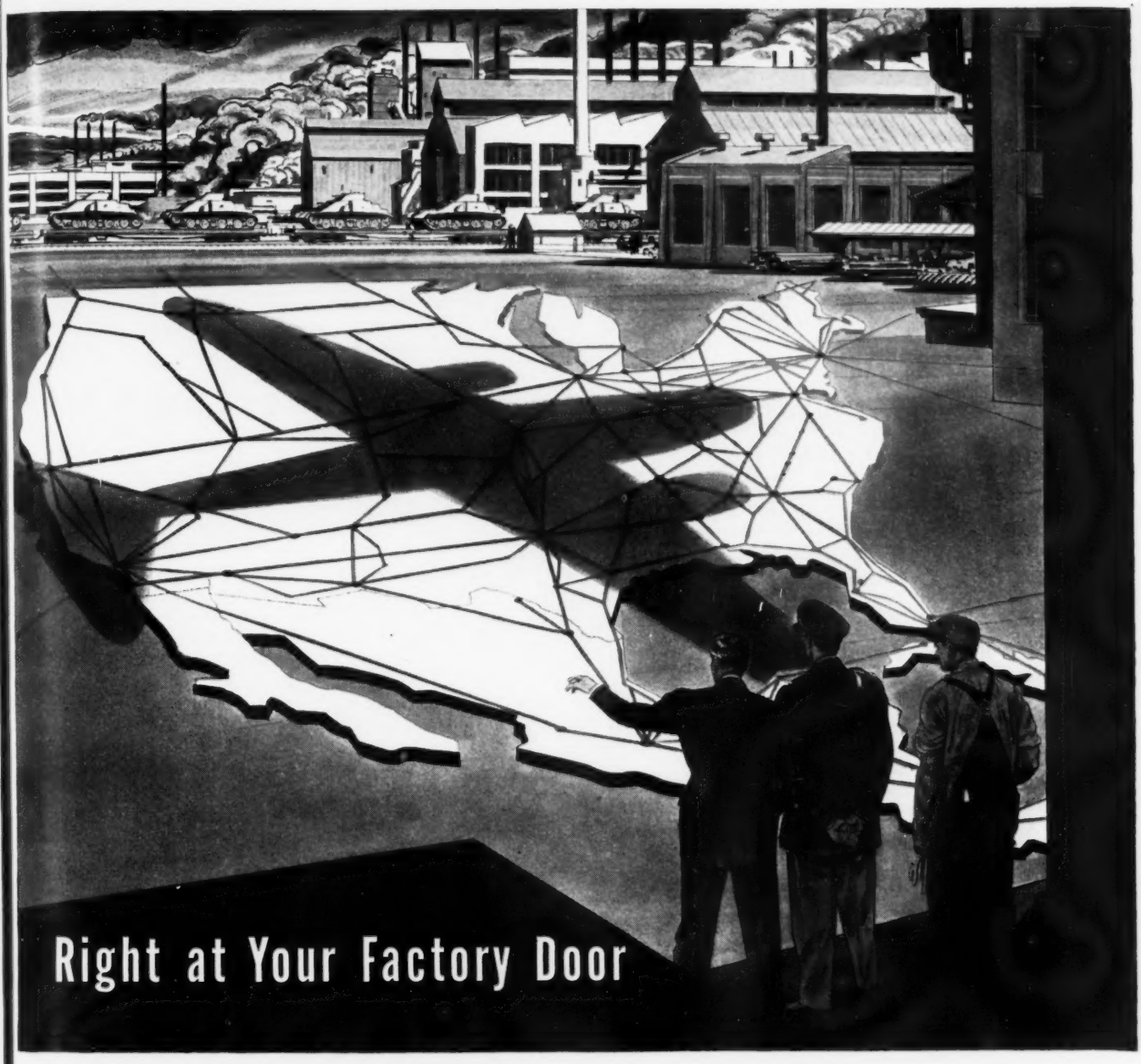
**Across the broad reaches of the Pacific and to the far coast of Africa, H & B war products are finding their way in ever increasing numbers. Made by Americans, for Americans, to keep America free. ★ ★ ★ Let's all get behind Our Country's war effort until the last shot is fired for Victory, and the boys come marching home.**

**H & B AMERICAN**
TEXTILE MILL MACHINERY
*Boston Office:* 161 Devonshire Street. *Atlanta Office:* 819 Citizens & Southern National Bank Building.

**H&B**
TEXTILE MILL MACHINERY



**MACHINE COMPANY**
PLANT AT PAWTUCKET, R. I.
*Charlotte Office:* 1201-3 Johnston Building. *Export Department:* United States Machinery Co. 115 Broad Street, New York, U. S. A.




WHEN the Japs struck at Pearl Harbor, the Air Express system of the United States was by far the greatest in the world.

Built during years of peace, it required no conversion for war. It was *ready to go!*

Now, as then, Air Express provides industry with a vast network of skyways over which to move critical material at a speed of three miles a minute.

For the manufacturer, it's almost like having the entire nation right at his factory door—no supplier or sub-contractor can be far away with this fastest form of delivery.

It serves every U. S. industrial town and city, and more than 60 foreign countries —either direct or by rapid Air-Rail connections, with schedules that are figured in hours instead of days and weeks.

It gains millions of work-hours for thousands of war plants, with vital shipments that prevent production tie-ups, break industrial bottlenecks and keep men on the job.

**TODAY,** Air Express also works hand in hand with the Army and Navy Air Transport services, to supply our fighting fronts throughout the world.

**TOMORROW,** Air Express will girdle the globe in friendly commerce, and will bring *all* foreign markets to the doorstep of American business.

**AIR EXPRESS SPEEDS WAR PRODUCTION**

SHIP EARLY — as soon as shipment is ready — to assure *fastest* delivery. PACK COMPACTLY — to conserve valuable space. ASK for our "Wartime Wall Chart"—an illustrated guide for simplified preparation of Air Express shipments.

AIR EXPRESS

Gets there FIRST

**Phone RAILWAY EXPRESS AGENCY, AIR EXPRESS DIVISION • Representing the AIRLINES of the United States**

## TOUGH! . . . But Schooled for Smooth Teamwork Under Strain

You get *toughness* in Emmons heddles to stand up under the rigors of war-time production, plus *smoothness* in action which results from careful "training" and constant inspection during manufacture.

*Toughness*—high tensile strength and corrosion-resistant plating — insures long life. *Smoothness*—from extra polishing and streamlining of heddle eyes — checks fly and eliminates an important cause of warp breaks.

These qualities are continuously checked by Emmons' plant inspection — and periodic outside laboratory tests — before placing the "Inspected and Approved Seal" and "Certified" tag on shipments to you.

How about delivery? Keenly aware of our country's textile needs, we have pledged our best efforts to your war-time needs. New as well as old customers can count on our best possible service.

**Be Certain...**
**Buy Certified**

**EMMONS LOOM HARNESS COMPANY**
Lawrence, Massachusetts . . . . Charlotte, North Carolina

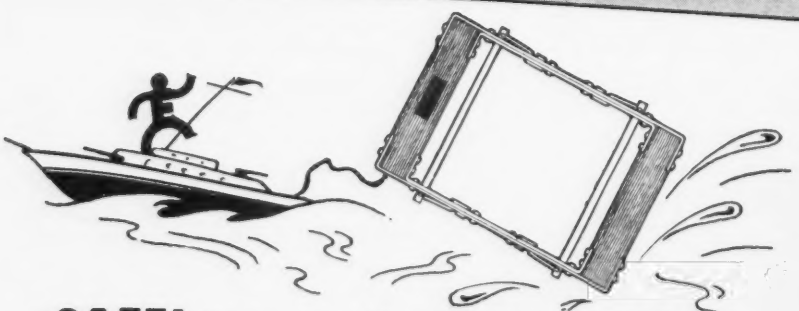
## STRONG! . . .
### But Plenty of Room for Action

The secret of fewer rejects and seconds with Emmons reeds is more yarn space, with no less rigidity. More accurate dent spacing is important, too, even to 1/100th of an inch. More uniform dent thickness, to 1/1000th of an inch, further insures the longer, trouble-free service that helps keep your looms on "Go"!

*Look for this "Inspected and Approved" seal on every shipment of Emmons products, representing Emmons quality and trustworthy inspection methods.*

**Be Certain — Buy Certified**

*See Latest TEXTILE WORLD YEARBOOK for details on all Emmons Products*



## SAFE! Even for the Highest Speeds

You can recognize the improved service you will get from Emmons heddle frames. The black EMMONITE finish on frame ends, a phytanium-blended penetrant, gets right into the metal's grain to fight rust and wear. Hand-picked, knotless lumber, plus a double coat of shellac and extra rolled rivets, promises longer life, with no buckling even at highest speeds.

**EMMONS**

Lawrence, Mass., and Charlotte, N. C. Products stocked in Charlotte and Lawrence. Reeds manufactured at both plants. Branch offices: Clifton Watson, Manager of Southern Sales, George Field, Plant Manager, Box 2036, Charlotte (Tel. Charlotte 3-7503) . . . Arthur Harris, Box 1982, Atlanta (Tel. Main 2543) . . . Alvin Braley, Box 236, Itasca, Tex. (Tel. 170) . . . W. S. Taylor, 52 Vanderbilt Ave., New York (Tel. Lexington 2-6060) . . . Albert R. Breen, 80 East Jackson Blvd., Chicago (Tel. Harrison 7140).

ARGENTINA, Buenos Aires, Roberto Zander, 345 Juan Jaures; BRAZIL, Rio de Janeiro, A. Polak, Caixa Postal 362; CHILE, Santiago, W. L. Robinson, Casilla 2025; CUBA, Havana, J. M. Perez-Pena, Box 1611; MEXICO, Mexico City, D. F. Leo Lenk, Apartado 533; COLUMBIA, Medellin, C. E. Halaby & Co., P. O. Box 139.

# STOUT YARNS FOR WEAR, COMFORT and UNIFORMITY ON LAND OR SEA

Good socks, good underwear, require good yarn—well and uniformly spun from selected staple. This foundation for wear and comfort is basic with Standard's manufacturing policy and extends to all its yarns for whatever purpose and use.

War has called for some new and currently special purpose yarns which will ultimately have a place in your post-war civilian products.

## STANDARD-COOSA-THATCHER CO.

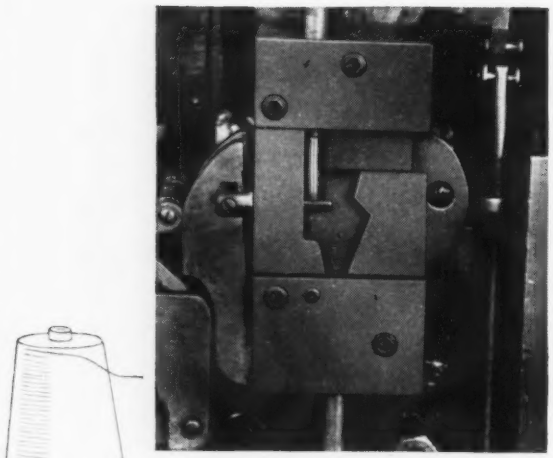
CHATTANOOGA, TENNESSEE • *Sales Offices: 804-06 Lafayette Building, Philadelphia, Pa.*

STANDARD DURENE
SELO · PREEMO
COMBED SAKS · THREADS
COMBED PEELERS

BRANCH OFFICES:
New York, N. Y., 195 Madison Ave.
Chicago, Ill., 940 Merchandise Mart
Greensboro, N. C. Guilford Building
Reading, Pa. Reading 6282

SPEED VICTORY—BUY WAR BONDS

# better Methods with mechanical fingers



*A connecting link assembly machine which replaces human fingers and eliminates the possibility of error.*

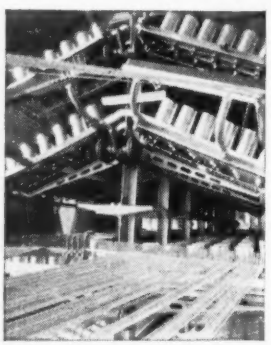
Machine designers have done amazing things in multiplying power and speed. Even more astonishing are their achievements in creating machine assemblies which perform work that previously only human fingers could do. Baldwin-Duckworth engineers, in constantly striving to give these designers and mill superintendents the finest roller chain belts for power transmission and conveying tasks, have themselves designed outstanding machines to make them. This connecting link assembly machine, for example, completely replaces hand-sorting of non-symmetrical pins having a tenon at one end and a cotter pin hole in the other. Its mechanical "fingers" turn end-for-end, and place the pins correctly as they come from the hopper, eliminate all possibility of error, and assure a uniformly assembled finished product.

## better Drives with Baldwin Roller Chain Belts

Roller chain belts provide better solutions for many drive problems. It is equally true that *better* roller chain belts give even better drives. This fact lends meaning to the precision methods of Baldwin manufacture. It accounts for the unfailing dependability, the split-second timing, jerk-free smoothness and virtually 100% efficiency which characterize Baldwin drives. It is worth remembering, too, that *chain belts are the only medium of power transmission that can absorb shock loading without loss of speed ratios or efficiency.*

Your Baldwin-Duckworth catalog will give you data on standard applications of chain belts, and for specialized applications a Baldwin man will supply any information you may require. He will be glad to work with you on transmission or conveying operations of any machine which you may be designing, adapting or which needs greater timing or drive efficiency. Baldwin-Duckworth Division of Chain Belt Company, 346 Plainfield St., Springfield, Mass.

**EXAMPLE**



*This creel uses Baldwin Roller Chain Belt because it delivers:*

1. Positive maintenance of speed ratios.
2. Smooth, quiet, jerk-free operation.
3. Equal efficiency on both long and short centers.

**IT'S BALDWIN-EQUIPPED**

better Drives through better Methods

# BALDWIN

ROLLER CHAIN BELTS

# New speed in de-sizing Cottons . . .

**De-sizing cottons** no longer ties up production for hours while goods are steeped. YARMOR 302-W, when made soluble, does the job cleanly, thoroughly, in a fraction of the time required by older methods. Here's how.

First, YARMOR 302-W *penetrates* the warp size, quickly loosens particles of starch and softener. Then it *disperses* these particles evenly in the de-sizing bath. Finally, the YARMOR 302-W *suspends* all size and foreign matter for quick, clean rinsing.

You can do the job faster and cleaner by using de-sizing compounds made with YARMOR 302-W.

## YARMOR* 302-W

**is not "just a pine oil,"** but an improved product developed by Hercules especially for the textile industry. It contains the correct balance of terpenes and, when properly compounded, gives greatest wetting, emulsifying and dispersing action. Yarmor 302-W is equally useful in all textile wet-processing operations.

*Reg. U. S. Pat. Office

# YARMOR 302-W

NAVAL STORES DEPARTMENT

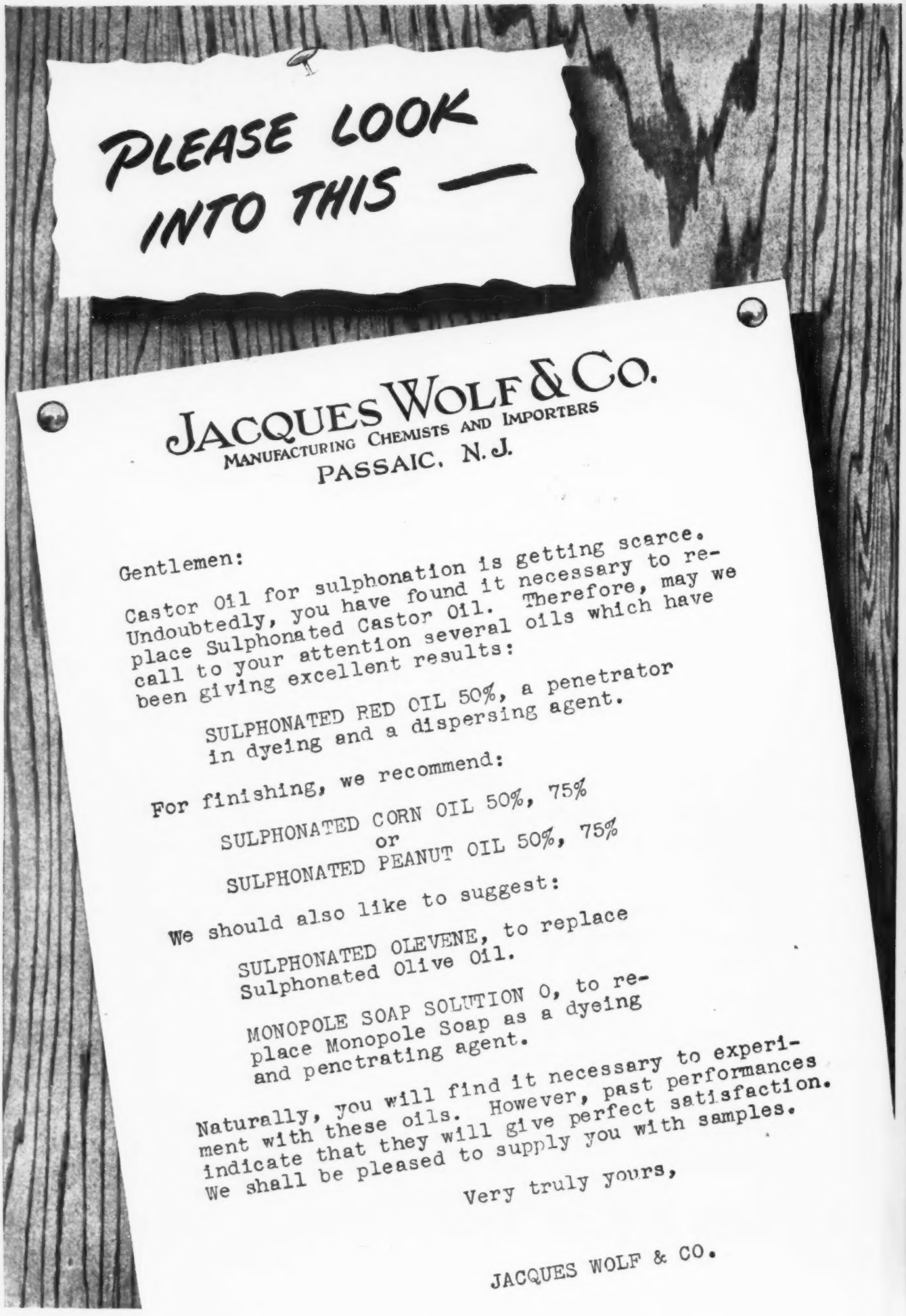
*HERCULES POWDER COMPANY*

INCORPORATED

WILMINGTON ★ DELAWARE

00-76

**1** cleaner wood scouring **2** faster fulling and scouring **3** more even dye penetration **4** better kier boiling of cotton


PLEASE LOOK INTO THIS —
JACQUES WOLF & CO.
MANUFACTURING CHEMISTS AND IMPORTERS
PASSAIC, N. J.
Gentlemen:
Castor Oil for sulphonation is getting scarce. Undoubtedly, you have found it necessary to replace Sulphonated Castor Oil. Therefore, may we call to your attention several oils which have been giving excellent results:
SULPHONATED RED OIL 50%, a penetrator in dyeing and a dispersing agent.
For finishing, we recommend:
SULPHONATED CORN OIL 50%, 75%
or
SULPHONATED PEANUT OIL 50%, 75%
We should also like to suggest:
SULPHONATED OLEVENE, to replace Sulphonated Olive Oil.
MONOPOLE SOAP SOLUTION O, to replace Monopole Soap as a dyeing and penctrating agent.
Naturally, you will find it necessary to experiment with these oils. However, past performances indicate that they will give perfect satisfaction. We shall be pleased to supply you with samples.
Very truly yours,
JACQUES WOLF & CO.

# The Spirit

## OF FREEDOM HAS YET TO BE CONQUERED

It has survived centuries of despotic onslaughts. But this war is the first attempt to force free men to surrender their freedom in exchange for the privilege of becoming slaves.

And rubber, one of the most essential commodities in the whole war effort, is playing its vital part in the battle for freedom.

Civilian needs, it is true, may have to be put aside for the time being, but when victory is won and the world is once again free to resume its normal activities, we shall be ready to serve you as we have for more than 60 years.

**BOSTON WOVEN HOSE & RUBBER COMPANY**

WORKS: CAMBRIDGE, MASS., U. S. A.
P. O. BOX 1071, BOSTON, MASS., U. S. A.

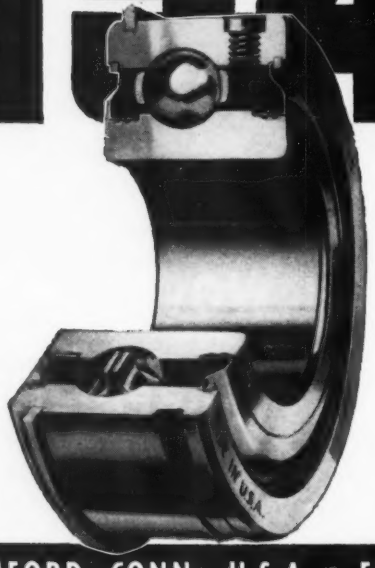
# 1921 1923 1925 1927 1929 1931 1933 1935 1937 1939 1941 1943

# TIME *Marches On*

In 1921, NORMA-HOFFMANN introduced the Cup Mounting—the forerunner of all self-protected ball bearings. From this, through progressive stages (as shown above) has evolved the NORMA-HOFFMANN "CARTRIDGE" BALL BEARING—an ultra-modern type embodying 32 years of PRECISION BEARING manufacture and offering to industry the following distinctive advantages:

SIMPLER AND MORE ECONOMICAL MACHINE DESIGN, due to elimination of many costly mounting parts and machining operations, otherwise required; EASIER AND FASTER MACHINE ASSEMBLY AND DISASSEMBLY, since the "CARTRIDGE" BEARING is an integrally sealed unit needing no complementary mounting parts; 100% GREATER GREASE CAPACITY, due to double-row width creating a greatly enlarged grease reservoir; COMPLETE AND LASTING EXCLUSION OF DIRT AND FOREIGN MATTER by the use of tightly fitting, wearless, all-metal seals; SEALED FOR ANY POSITION, since the seals retain the lubricant regardless of shaft angle; EASY REGREASING AND INSPECTION WITHOUT DISMOUNTING, by means of refilling plug and removable seals.

*Write for the Catalog.* Submit your bearing problems for study and recommendation, without obligation. NORMA-HOFFMANN sales and service engineers, and distributors in principal cities stocking "CARTRIDGE" BEARINGS, are at your service.




"NORMA-HOFFMANN"

## CARTRIDGE

**BALL BEARING**

PRECISION BALL, ROLLER and THRUST BEARINGS

NORMA-HOFFMANN BEARINGS CORP'N., STAMFORD, CONN., U.S.A. • FOUNDED 1911

# S is for SCARCITY...

# and for SERVICE, TOO!

Service is a word to which Cyanamid has always been partial. For it forms the foundation upon which the Company has built its customer relations.

The chemical needs of wartime industry now have first call on much of Cyanamid production. No one, we feel sure, would want this to be otherwise. But among the critical high priority materials are many upon which manufacturers of civilian goods have depended in the past.

This situation Cyanamid regards as a double responsibility. As a result, while the Company's rapidly expanding capacities constantly increase chemical production for war use... Cyanamid has applied important research and product development activities to help meet imperative customer problems brought about by the emergency.

Many timely developments have resulted... new formulations and new uses for non-critical materials ... providing ways and means of "filling the breach".

If you are confronted with a problem arising out of inability to obtain the chemicals formerly considered necessary to your production, Cyanamid chemists and technicians will be glad to study the situation and make recommendations for the use of substitute materials wherever this may be possible.

---

**AMERICAN CYANAMID**
**AND CHEMICAL CORPORATION**
*A Unit of American Cyanamid Company*
30 ROCKEFELLER PLAZA, NEW YORK, N. Y.

MANUFACTURERS OF

SULPHONATED OILS • PENETRANTS • FINISHES • SOFTENERS
SIZING COMPOUNDS • DECERESOL* WETTING AGENTS
AND OTHER SPECIALTIES FOR THE TEXTILE INDUSTRY

*Reg. U. S. Pat. Off.

# *Earmarked for failure*

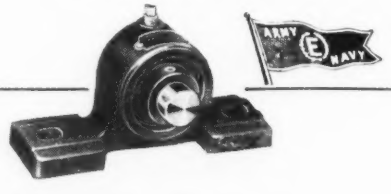
## . . . these Fafnirs Didn't Fail!

*"The presence of moisture and steam in this machine," said the manufacturer, "will lick any ball bearing that goes on the job. Ball bearings just won't stand up under these conditions!"*

BUT, Fafnir's engineer refused to accept this statement . . . for good reasons. In other installations . . . as tough or tougher, under similar operating conditions . . . Fafnir units were giving highly satisfactory service. Maintenance men and mill mechanics reported minimum trouble . . . replacements *had* been made only after the Fafnirs long out-lived any other type of bearing ever used.

In the face of proven records of Fafnir performance, the customer agreed to the installation of Fafnir SAK units on the roller shafts pictured here. That was several years ago. Some of the original Fafnirs are still going . . . few, very few have been replaced. Now, this customer is completely sold on the dependability of Fafnir Ball Bearings . . . and won't use anything else when the job calls for ball bearings.

To Textile machinery makers and operators, Fafnir's Balanced Design . . . larger balls and deeper races . . . means higher machine efficiency and long, trouble-free bearing life under all load and operating conditions. The wide variety of Fafnir Textile Ball Bearings . . . standard and specialized . . . are the result of many years experience working directly with textile machinery designers. For fast, safe, continuous production, depend on Fafnirs. The Fafnir Bearing Company, Textile Division, New Britain, Connecticut. Branch offices: Atlanta . . . Birmingham . . . Boston . . . Charlotte . . . Dallas.

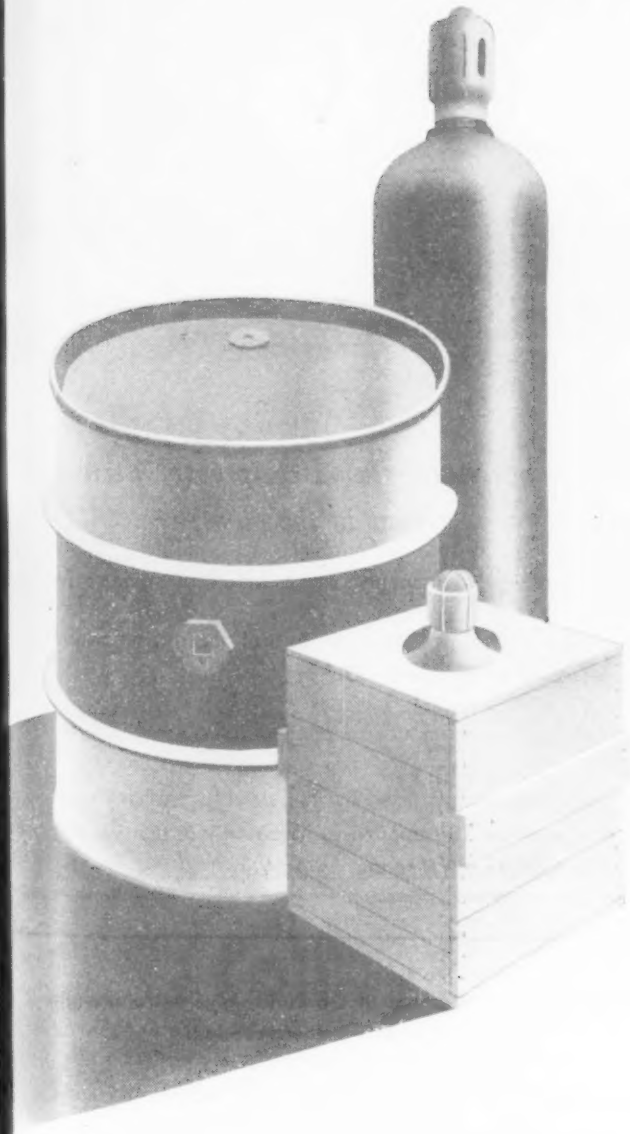



**FAFNIR**

**BALL BEARINGS**

# CONTAINERS ARE VITAL

## ✓ handle carefully ✓ return promptly



CONTAINERS today are worth their weight in gold. Every drum, cylinder and carboy must do the work of three or four in peacetime.

YOU can help to keep essential chemical materials moving smoothly and quickly and *assure speedier delivery of your next order* by following these five simple steps:

**1.** Handle all containers with care.

**2.** Empty contents as soon as possible.

**3.** Don't use for other materials... don't even rinse drums and carboys with water.

**4.** Replace bungs in drums, outlet caps on cylinders, and thoroughly drain carboys.

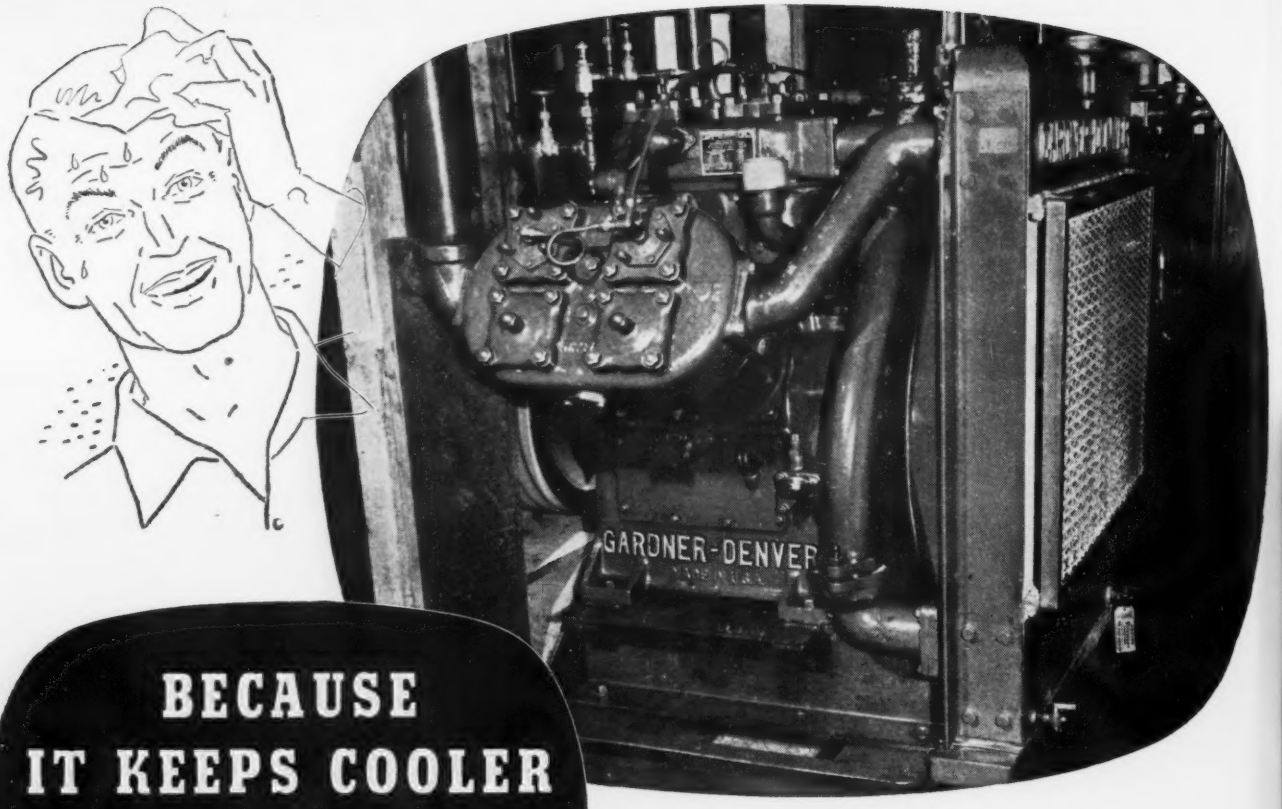
**5.** THEN RUSH THEM BACK WHERE THEY CAME FROM!

Every user of chemicals who follows those five suggestions will be helping save materials... and time ...two vital ingredients for victory! MONSANTO CHEMICAL COMPANY, St. Louis, Missouri and Everett Station, Boston, Massachusetts.

**"E" FOR EXCELLENCE**—The Army-Navy "E" burgee, "representing recognition by both the Army and the Navy of especially meritorious production of war materials," has been awarded to Monsanto and replaces the Navy "E" first awarded Monsanto December 31, 1941.

MONSANTO CHEMICALS

SERVING INDUSTRY...WHICH SERVES MANKIND




# BECAUSE IT KEEPS COOLER ★ *You can, too!*

WHEN jobs are "hot"—when production must be rushed—operators who have Gardner-Denver "WB" Vertical, Two-Stage Air Compressors can keep cooler. These fully water-cooled compressors assure a full day's work, every day of the month.

Get the full details from Gardner-Denver Company, Quincy, Illinois.

***Here's what water-cooled compressor performanc means in the plant:***

1. Lubricating oil economy and substantial savings for you
2. Cooler discharge temperatures that are easier on your va uable air hose and air tools.
3. Sustained performance that means full air output every shift
4. No pampering required for full air output at any altitude o temperature. The compressor is equally at home in frigid ai or in a hot engine room.

**OTHER "WB" ADVANTAGES**

★ A rugged unit especially designed to conserve space.

★ Operates at efficiencies comparable to those of much larger compressors.

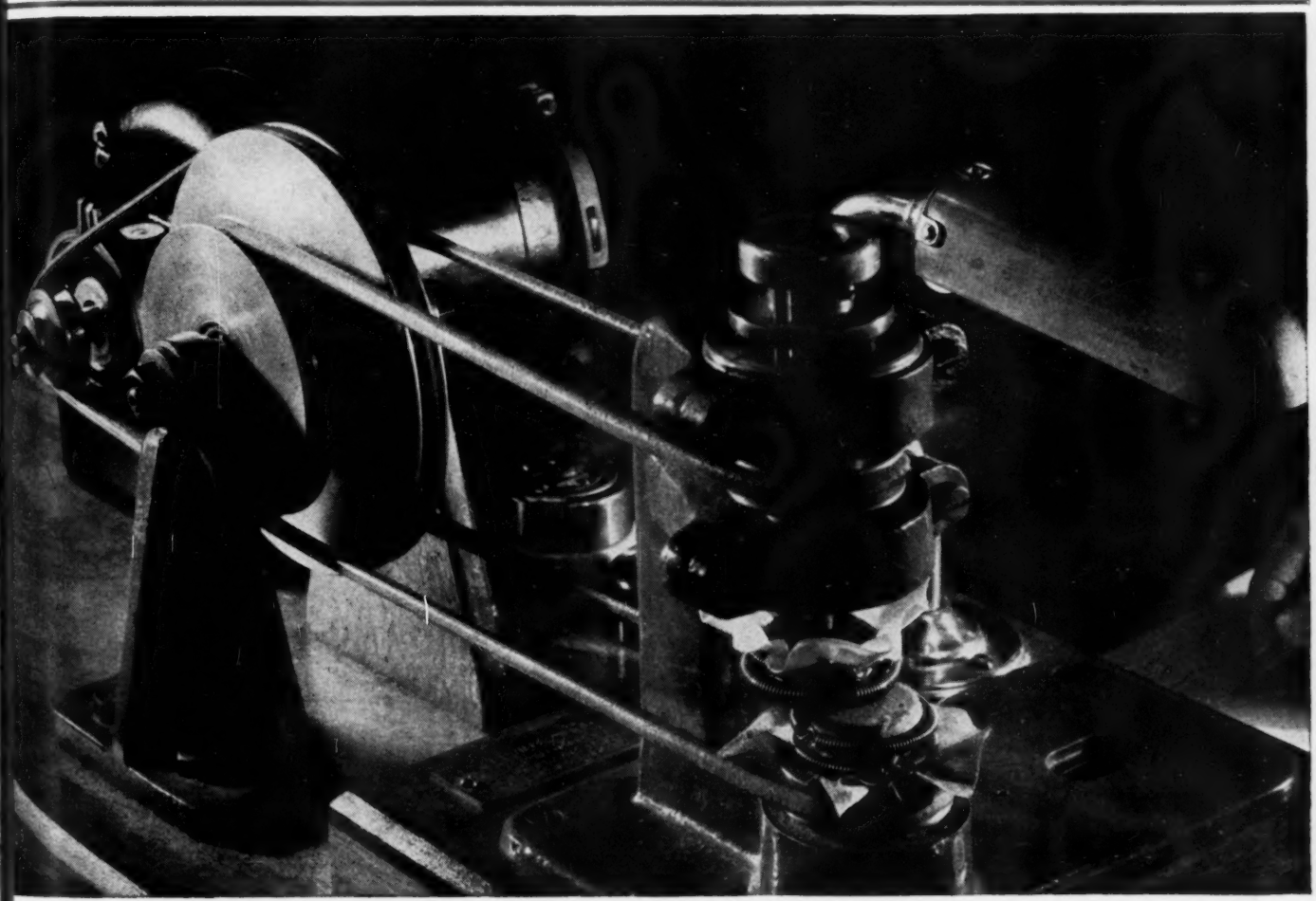
★ Castings of GarDurloy give extra strength and hardness where needed.

★ Capacities range from 142 to 445 cubic feet displacement per minute.

## GARDNER-DENVER *Since 1859*

Gardner-Denver Company, Quincy, Illinois. Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Hazelton, Pa.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Pa.; Pittsburgh, Pa.

# *YEARS OF WEAR*
# measured in minutes!



## ABRASION MACHINE ACCELERATES WEAR

Unlike most abrasion tests, this machine actually determines the wear of one fabric against another fabric. By "wearing out" both treated and untreated samples, the Rohm & Haas Textile Laboratories find the best finish to improve a fabric's wearing qualities . . . the most durable type of finish for each particular fabric.

Special textile finishes that have doubled, even tripled, wear resistance have already been developed in these laboratories.

## DON'T GIVE UP UNTIL WE DO

Our modern research laboratories are complete with all types of specialized equipment for the testing and checking of every mill operation . . . all types of textile fabrics. When no standard laboratory machine is available, Rohm & Haas research men develop devices to accomplish the needed test.

From the initial development of a new product to the final plant processing of finished goods, the Rohm & Haas Textile Laboratories are ready to help you.

**TRITONS** —*Synthetic detergents, emulsifying, wetting, and dispersing agents.*

**RHOTEXES** —*Synthetic gums for sizing and thickening.*

**DEGOMMAS** — *Concentrated diastatic and proteolytic enzymes for desizing.*

**RHOPLEXES** —*Aqueous resin dispersions for finishing and coating fabrics.*

**RHONITES** — *Modified urea formaldehyde resins for textile finishing.*

**PROTOLIN** — *Stripping agent for wool stock and piece goods.*

**FORMOPON** — *Reducing and stripping agent in acid systems.*

**LYKOPON** —*Reducing and stripping agent in basic systems.*

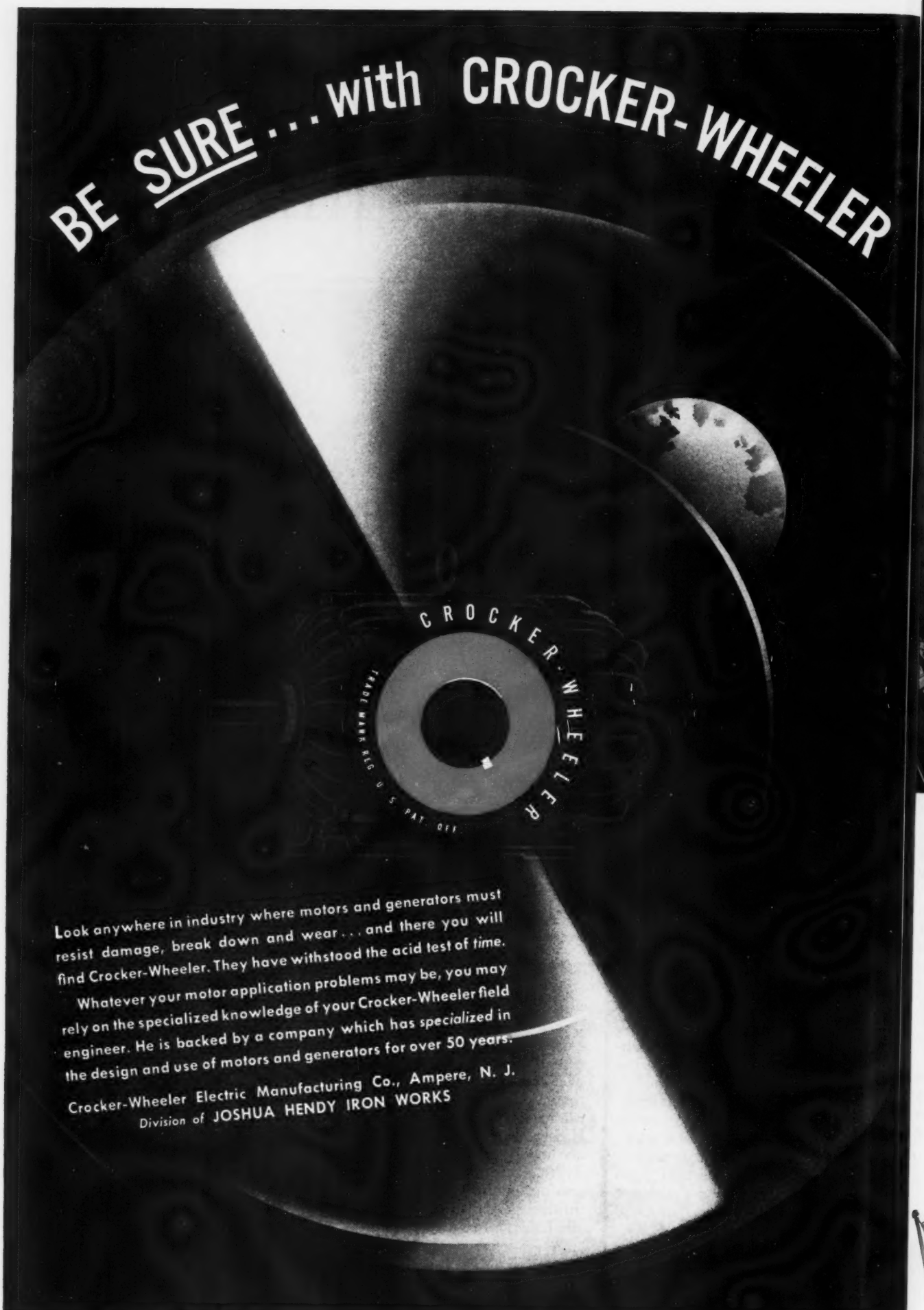
TRITON, RHOTEX, DEGOMMA, RHOPLEX, RHONITE, PROTOLIN, FORMOPON *and* LYKOPON *are trade marks Reg. U. S. Pat. Off.*

# ROHM & HAAS COMPANY

*WASHINGTON SQUARE, PHILADELPHIA, PA.*

Manufacturers of Chemicals including Plastics . . . Synthetic Insecticides . . . Fungicides . . . Enzymes . . . Chemicals for the Leather, Textile and other Industries

# BE SURE . . . with CROCKER-WHEELER




Look anywhere in industry where motors and generators must resist damage, break down and wear . . . and there you will find Crocker-Wheeler. They have withstood the acid test of time.

Whatever your motor application problems may be, you may rely on the specialized knowledge of your Crocker-Wheeler field engineer. He is backed by a company which has specialized in the design and use of motors and generators for over 50 years.

Crocker-Wheeler Electric Manufacturing Co., Ampere, N. J.
Division of JOSHUA HENDY IRON WORKS

**Other JOSHUA HENDY IRON WORKS factories at Sunnyvale, Pomona and Torrance, California and St. Louis, Mo.**

*Up there alone,* hobnobbing with the scudding clouds in the white-flecked azure, what's in the back of his mind, while he scans an ocean monotonously empty?

There are long and glamorless stretches to patrolling. Plenty of time to think—in a detached way that doesn't distract his watchful eyes from sea or instrument panel . . . . . Plenty of time to see a sunlit street, a campus path, a breath-catching moment of bashful ardor under a genial moon. Whatever the image, it stands against the background of coming home to opportunity, to work, to fulfillment.

---

And that's what it will be if production is pushed, if paydays are bond-days and if spare hours are devoted to plans for supplying post-war markets—and thereby a job and home for this boy.

***It's his due*** . . . . . There'll be a hunger for the goods we've done without, but they'll not be identical goods. They'll be improved or entirely new. Made, quite probably, with machines that have yet to be built—machines that are typical of American ingenuity—perhaps even like some of those developed and made here at FIDELITY and described in "Facilities."

Write for a copy of this illuminating book.

ARMY E NAVY

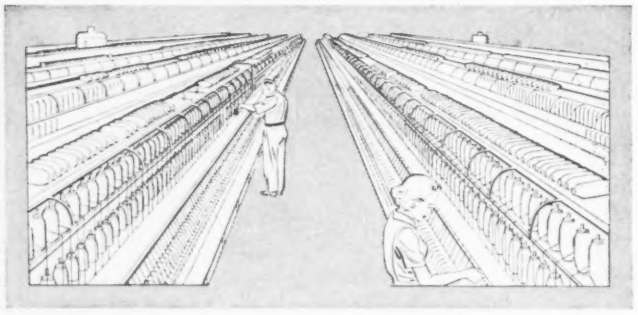
32 YEARS' EXPERIENCE

*Builders of Textile Machinery, including Circular Knitting Machines, Skein Reelers, Backwinders, Fidelity-Rolandé Course Counters and Universal Ribbers*

**FIDELITY MACHINE COMPANY**

3908-18 FRANKFORD AVENUE, PHILADELPHIA, PA.

***Gulf Quality Lubricants have greater stability and endurance — provide the round-the-clock protection you need for maximum production.***



NOW that spare parts and new production units are hard to get even with high priorities, protection from wear of hard-pressed equipment now in service has become in many cases a No. 1 management problem.

For a successful fight against wear in *your* mill, here are some of the more important steps you can take today: Make sure that all shafts, bearings, and gears are properly aligned; that provision is made to keep all moving parts clean; and call in a Gulf Lubrication Service Engineer to help you install the best lubrication practice.

From Gulf's complete line, the Gulf Lubrication Service Engineer will recommend oils and greases especially manufactured to meet the present day needs of textile mills—lubricants with greater stability and stamina, that stand up and provide round-the-clock protection for your machines. Result: full capacity production from every unit, a minimum of production lags caused by breakdowns and mechanical troubles, and lower expense for maintenance and repairs.

The helpful counsel of a Gulf Lubrication Service Engineer—and the Gulf line of more than 400 quality lubricants—are available to you through 1200 warehouses located in 30 states from Maine to New Mexico. Write or 'phone your nearest Gulf office today.

***GULF OIL CORPORATION—GULF REFINING COMPANY***

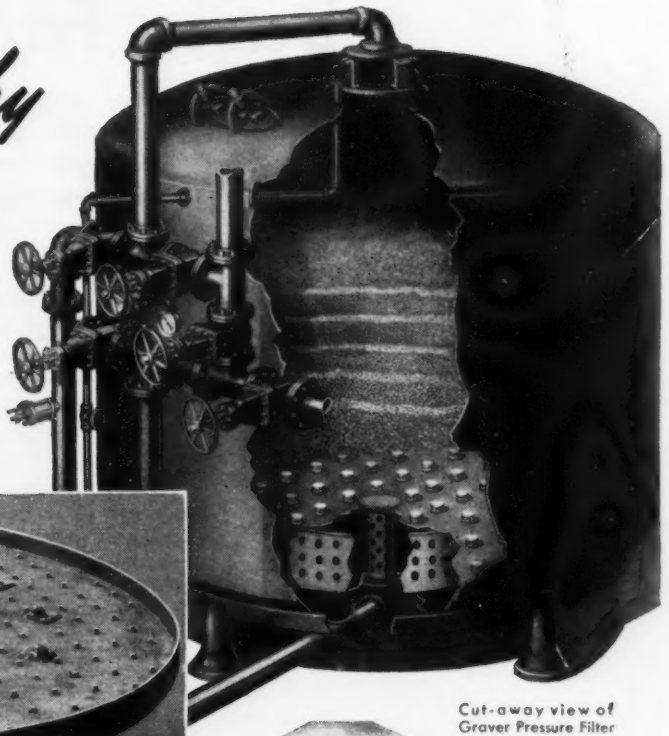
GULF BUILDING, PITTSBURGH, PA.

GULF INDUSTRIAL LUBRICATION

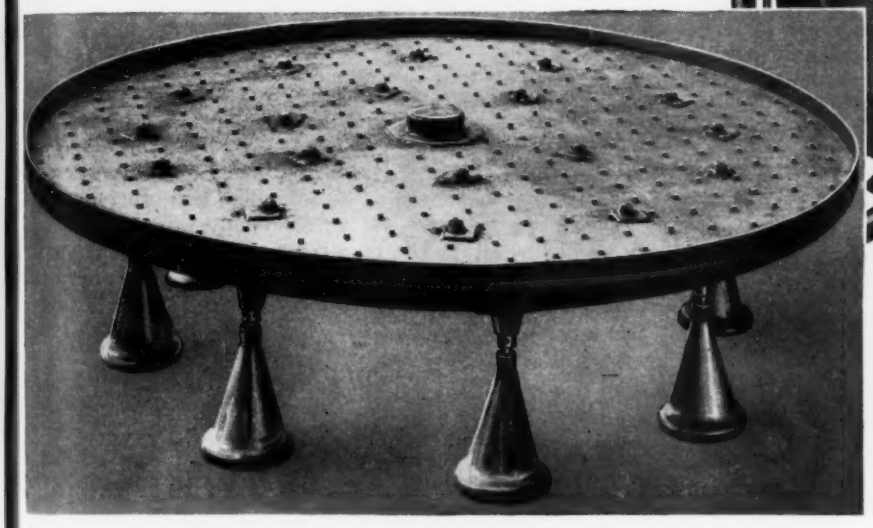
FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

*Another reason why*

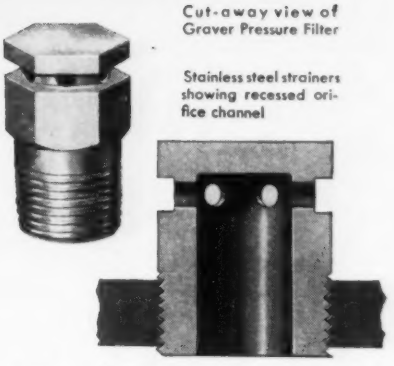
# GRAVER
## PRESSURE FILTERS
### *insure highest filtration efficiency*



Cut-away view of Graver Pressure Filter



Above — Strainer plate and stainless steel strainers



Stainless steel strainers showing recessed orifice channel

THE FILTERING CAPACITY of a pressure filter is based on the horizontal cross-sectional area of the filter bed. Unless the underdrain system provides for even distribution over the entire area, the water will pass through only a portion of the bed and the filtering capacity will be materially reduced.

The strainer plate type of underdrain system as provided in all Graver Pressure Filters assures even distribution of incoming water and backwash water throughout the entire filter bed. This system is designed so that the use of strainers set on 6″ centers distributes the water evenly. In addition, an expansion chamber below the bed assures an even amount of backwash water reaching each strainer. This permits proper backwashing and prevents clogging of the filter bed. It also acts as a collection chamber for filtered water during filtering operation.

Another important point is that all strainers used in Graver Pressure Filters are made of stainless steel. This type of material positively prevents closing of orifices due to corrosion. Also, the use of stainless steel strainers avoids electrolytic action between strainers and strainer plate.

The Graver type of underdrain system eliminates the need for any concrete grout or fill, therefore, no cracks—no stagnant water—no breeding places for bacteria.

Before you definitely decide on any type of equipment for filtration of water for any use, investigate the advantages offered by Graver equipment.

*For further details on Graver Pressure Filters request Bulletin 313*

WATER SOFTENERS
•
FILTRATION SYSTEMS
•
CLARIFIERS
•
SEWAGE EQUIPMENT
•
STEEL STORAGE TANKS
•
VAPOR CONSERVATION SYSTEMS
•
WELDED CONSTRUCTION
•
STRESS RELIEVING
•
X-RAYING
•
FABRICATED STEEL AND CORROSION-RESISTING PLATE

GRAVER

GRAVER TANK & MFG. CO., INC.

NEW YORK
CATASAUQUA, PA.

4809-67 TOD AVE.
EAST CHICAGO, IND.
CABLE ADDRESS — GRATANK

CHICAGO
TULSA

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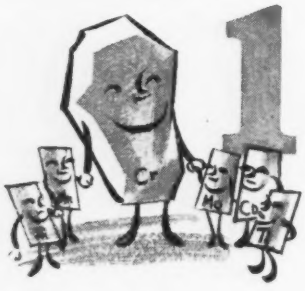
# Basic Facts about

# STAINLESS STEELS

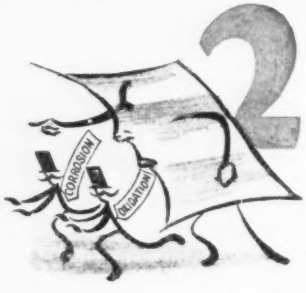
## A STAINLESS STEEL PRIMER




**STAINLESS STEELS**

are corrosion-resistant steels containing at least 12 per cent chromium with or without other alloying elements, such as nickel, manganese, molybdenum, columbium or titanium. They are supplied in a wide range of analyses.

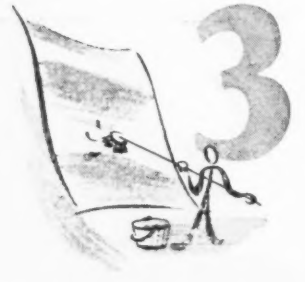
The stainless steels vary in corrosion resistance, workability, wear resistance, and physical properties according to the amount of chromium, carbon and other modifying elements present.




**VALUABLE PROPERTIES INCLUDE:**

Good corrosion and oxidation resistance . . . varying almost in direct proportion to the amount of chromium present.

High strength-weight ratio in some cold-rolled types permitting fabrication of strong, light-weight trains, aircraft, and other structures.

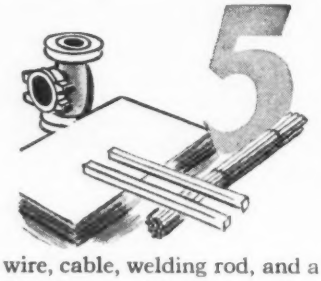



**MAINTENANCE**

of stainless steels is simple. Washing with soap, water, and a cleanser recommended for stainless steel will keep the surface bright and free from surface deposits.

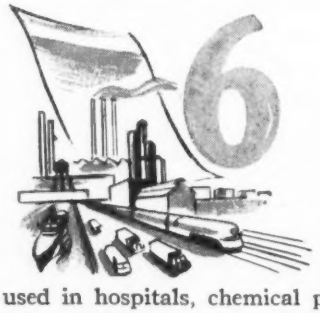
**FABRICATION**

is accomplished by almost all common methods. They can be machined, spun, deep-drawn, forged, punched, stamped, and otherwise mechanically-worked. They can be welded by all the common welding methods. If the austenitic steels are stabilized with columbium or titanium, and columbium-bearing welding rod is used, no annealing is necessary after welding.




**MANY FORMS**

are available in the common analyses including sheet, plate, strip, tubing — both seamless and welded — bars, wire, cable, welding rod, and a variety of cold-rolled shapes. Stainless steel is also supplied as foundry castings.




**APPLICATIONS**

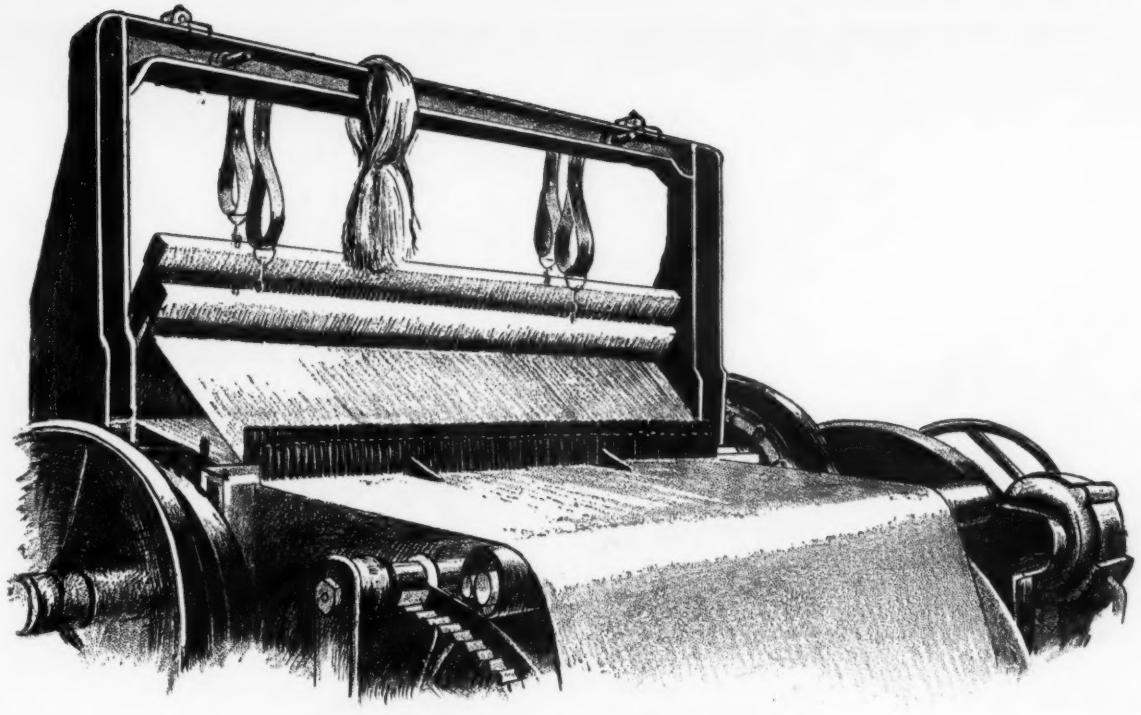
of stainless steel are numerous. Because of their resistance to corrosion and oxidation, as well as their high strength and bright surface, stainless steels have been used in hospitals, chemical plants, oil refineries, railroad trains, aviation equipment, and power plants. In the present emergency, they are available only for those industries participating in war production.

• • •

Although we do not make steel, we have for more than 35 years produced "Electromet" ferro-alloys and metals used in making steel. With the knowledge accumulated from this experience, we are in a position to give impartial advice. If you have a specific problem concerning the manufacture, fabrication, or use of stainless or other alloy steels, consult us without obligation.

**Electromet**
Trade-Mark
**Ferro-Alloys & Metals**

**ELECTRO METALLURGICAL COMPANY**
*Unit of Union Carbide and Carbon Corporation*
30 East 42nd Street UCC New York, N.Y.
In Canada, Electro Metallurgical Company of Canada, Limited, Welland, Ontario.



# Here's a lift for LAGGING LOOMS

Today, the only kind of textile production that counts is *all-out* production—production without delays or breakdowns!

And Cities Service *Precision Lubricants* and expert counsel are ready to help you prevent them.

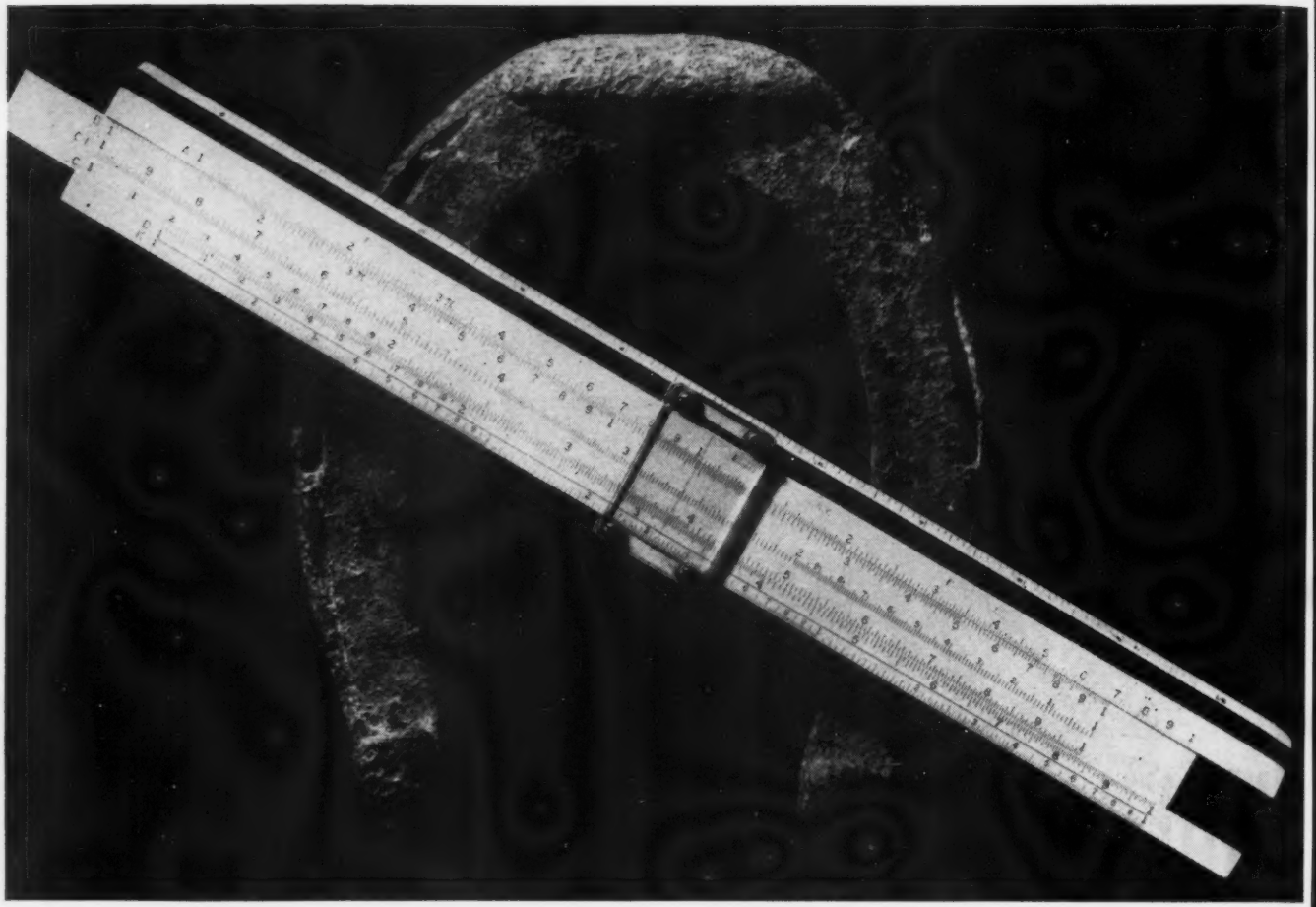
Whether your work calls for one or many types of lubricants, Cities Service can serve you with exact, top-quality products for every department of your mill—oils and greases designed to stay on the machines and off the fabric, reduce drag and step-up production.

It will pay you to learn more about them in actual service in your own mill. A Cities Service lubrication engineer will be glad to cooperate. Write our Cities Service office nearest you. And if you use Diesel Power write to Room 1346, Sixty Wall Tower, New York, N. Y., for an informative booklet on "Diesel Engine Lubrication."

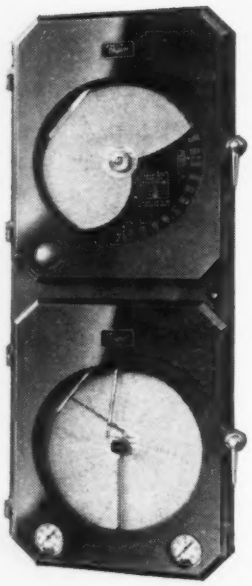
OIL IS AMMUNITION—USE IT WISELY!

CITIES SERVICE OIL COMPANY
NEW YORK · CHICAGO

IN THE SOUTH
ARKANSAS FUEL OIL COMPANY
SHREVEPORT, LA.



# Are we just lucky?



*Taylor Fulscope Time Schedule Controller makes size-cooking and other time-temperature operations completely automatic.*

IS IT luck—or something else—that has made Taylor Instruments popular in the textile industry?

Maybe we've been lucky. But there's a lot more to it than that. Our engineers could never have been so successful in recommending the right set-up for each processing operation—and the instruments that will keep those processes on the beam—without the "know-how" that comes only from years of experience.

For example, we'd like to show you how Taylor Accuracy can . . .

**1.** *Help assure uniform quality in dyeing, reducing re-dyes and rejects.*

**2.** *Give you complete automatic control of size-cooking. "Load the kettle and push the button."*

**3.** *Increase weave room efficiency.*

**4.** *Give you maximum control of finishing operations.*

No doubt about it, instruments *can* help increase production. So don't trust to luck. Call your Taylor Field Engineer! Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

* * *

*Instruments for indicating, recording, and controlling temperature, pressure, humidity, flow, and liquid level.*

**Taylor Instruments**
**MEAN**
**ACCURACY FIRST**
**IN HOME AND INDUSTRY**

★ KEEP ON BUYING U. S. WAR BONDS AND STAMPS ★

# *Ventilation is Vital*

## TO BRISK WAR PRODUCTION

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For better working conditions through improved visibility and increased light utilization.
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Light reflection factors, and product identification appear adjacent and to the right of the color chips.
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**Du Pont Field Engineers use scientific color selector to show you how to increase lighting efficiency.**

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OVID

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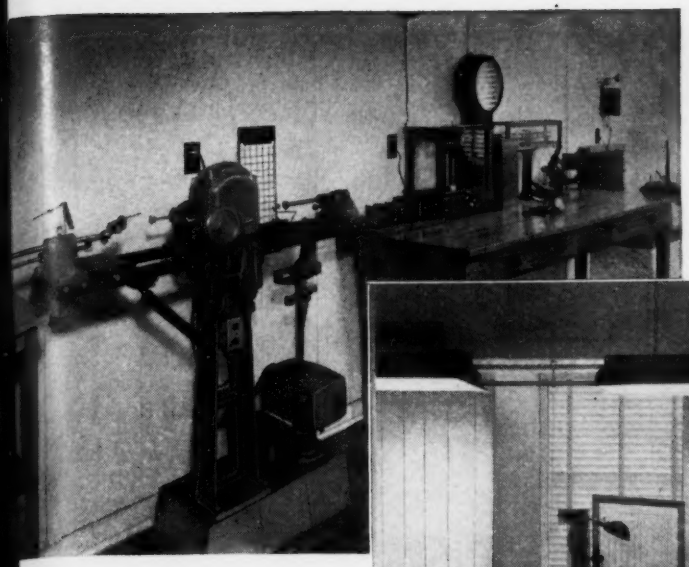
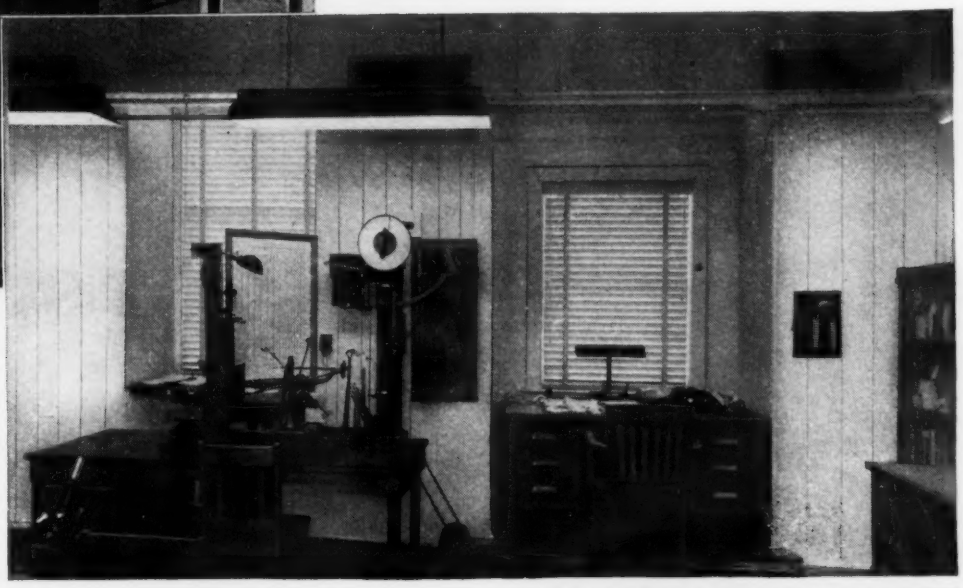
First award in America of the 3-Star Army-Navy "E" made to TMW for Ordnance production up to January 25, 1943.



THE TESTING LABORATORY of International Braid Company, with its Carrier Air Conditioning installation, is considered one of the best equipped in the Providence, Rhode Island, area.



THE SECRET of accurately testing nylon, and other extremely sensitive fabrics, is rigid temperature and humidity control. Carrier Air Conditioning provides it.

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ACCURATE TESTING is a vital phase of International Braid Company's production of critical war materials. This 150-year-old concern makes webbings for parachute harnesses, bomb slings, bomb harnesses, parachute harness packs, machine gun webbing, webbing for military uniforms and equipment, parachute shroud lines, legging laces, shoe laces, and braided cord. Cotton, rayon and nylon are the materials used, all of which are sensitive to temperature and humidity changes.

The Carrier Air Conditioning System installed in its Laboratory enables International Braid Company to maintain indispensable temperature and humidity control. By keeping such conditions constant, it provides the essential environment for the rigid accuracy in the testing of vital but "temperamental" textiles to meet the demands for war use.

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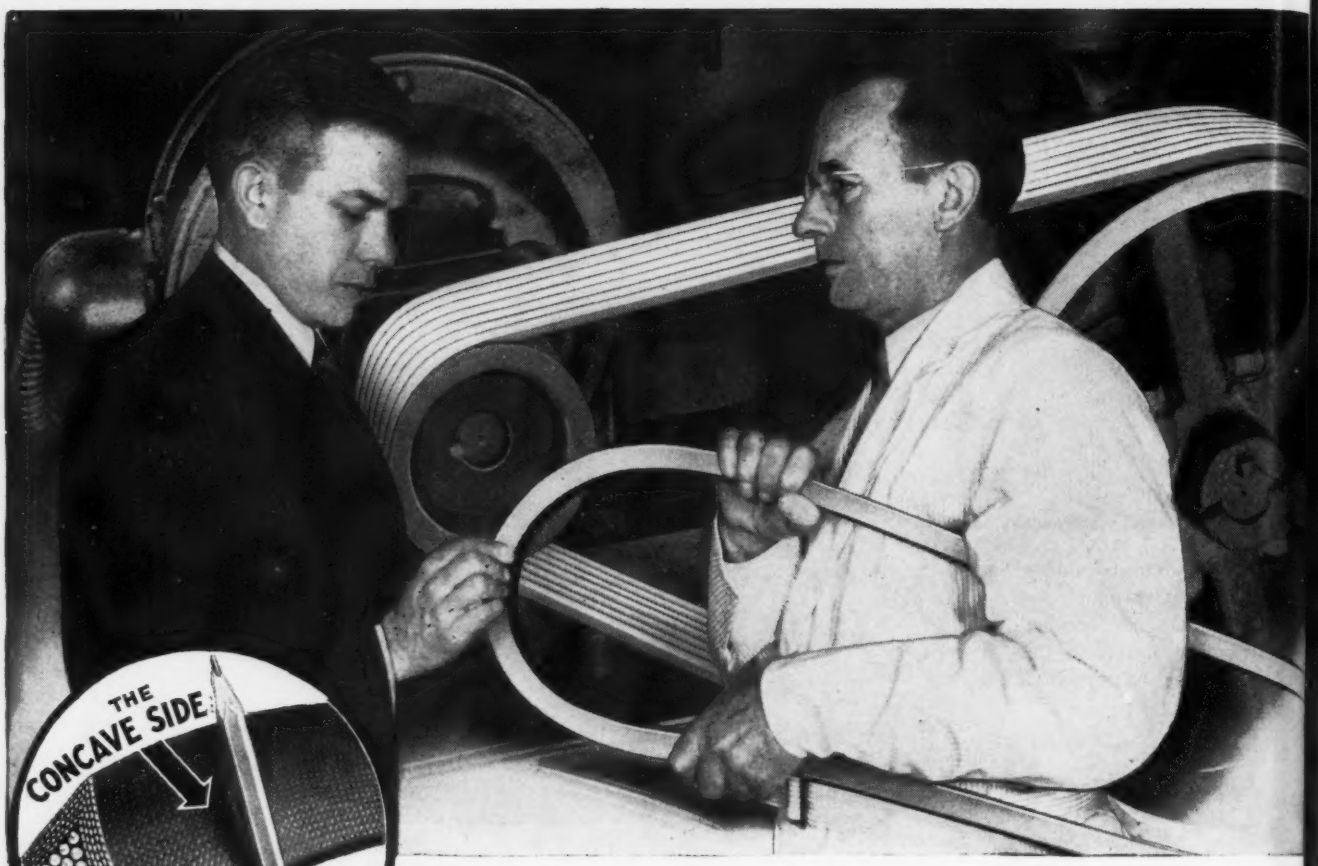


## *If* you care about better V-Belt performance

# MAKE *this* SIMPLE TEST

**What Happens When a V-Belt Bends**

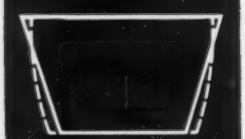
FIG. 1

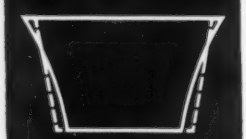
FIG. 2

433

Take any V-belt that has *straight* sides. Bend that V-belt while you grip its side walls between your fingers and your thumb—as shown in the large photograph above. As the belt bends, you will *feel* its sides *bulge out*—as shown in figure 1 on the left.

Now do the same thing with a belt that is built with the patented *Concave* side. You get a similar change in sidewall shape—but what a *different result!* The precisely engineered Concave side becomes perfectly *straight*—as shown in Figure 2. This belt when bent, exactly fits its sheave groove. There is no side-bulge.

Two savings result. FIRST:—The full side of the belt *uniformly* grips the sheave groove wall. This means *uniform wear—longer life!* SECOND:—The full side-width grip on the pulley carries heavier loads without slippage. This saves belts and power too!

Only belts built by Gates are built with the Concave side, which is a Gates patent

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# They've come a long way from Valley Forge

*U. S. Army Signal Corps Photo*

WHEREVER they go – into the steaming jungles of New Guinea or the frozen wastes of the Aleutians – the U. S. Army is the best-dressed fighting force in the world. That's a glowing tribute to the speed and efficiency with which the Quartermaster Corps has equipped millions of American soldiers. It is also dramatic proof of the record achievements of a war-minded textile industry.

Imagine the millions of yards of finished fabrics required to equip and clothe an army of 5,000,000 men . . . not counting the civilian population back home! Here are a few figures that tell the exciting story of wartime expansion in the textile industry: I the twelve months, ending September, 1942, th industry consumed 50,000,000 pounds of rayon month . . . over 4,309,079,500 pounds of cotton . . 373,334,000 pounds of wool (exclusive of huge quan tities of re-worked and re-used wool). A great pa of this eight-to-twelve months consumption of tex tiles went into the manufacture of uniforms, under clothing, tents, sheeting, blankets, tarpaulins and host of other goods urgently required by the Army Navy and Marine Corps.

Here at Royce Chemical Company our job is to pro duce many of the processing agents needed to finis these strategic goods. Chief among these vital textil chemicals are Royce finishing oils . . . hydrosulphite . . . and desizing agents. In this all-important job o keeping our growing army better clothed than th fighting men of other nations, we are proud of th opportunity of joining hands with the textile industry in a great All-American effort.

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**VELVORAY**—as finishing oils in processing many types of cloth designated for military use.

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# TABLE OF CONTENTS


**Edwin D. Fowle** — Publisher
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Earle Mauldin ..... *Southern Editor*
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# Textile World

**APRIL, 1943 • VOLUME 93 • NUMBER 4**

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## Management . . .


Absenteeism: A Fancy Name for Playing Hooky (Editorial) . . 73
Callaway Intensifies Research with Non-Profit Institute . . . . 86
Post-War Changes in Textiles—Canadian Mill Men Discuss . . 96
A New Knitting Industry in the Making (Knitting Section Begins) 97
Knitters Essential, for Soldier or Civilian . . . . . 98
More Textile Mill "E" Awards . . . . . 138
Newnan Cotton Mills Reminiscenses . . . . . 152
Letters to the Editor . . . . . 154


## Methods . . . . .

Annual Knitting Number
Special Section Begins on Page 97


Your Weave-Room Supply System Can Be Made Effective . . . 80
Effective Layout of Cloth-Room Equipment . . . . . 82
Mercerizing—A New Approach for Better Results . . . . . 84
Manual of Military Fabrics—Part III. 8.2 oz. Twill . . . . . 88
Flameproofing Military Fabrics; Fire, Water, Mildew Protection 90
Blends for 32 oz. Army Coating; 80% Loom Efficiency . . . . 91
Olive Drab for Army Nurses . . . . . 93
Defects in Combination Fabrics Traceable to Throwing . . . . 94
Knit Goods for Military Purposes . . . . . 102
Vat-Dyeing OD Army Underwear . . . . . 104
Defects in Military Knit Goods . . . . . 106
Throwing Rayon for Use in Hosiery . . . . . 110
Fixing Hosiery Machines—Full-Fashioned . . . . . 111
Fixing Hosiery Machines—Circular . . . . . 112
Hank-Clock Production-Constants Determine Final Doff . . . . 131
Producing Worsted Warp Yarns . . . . . 132
Loomfixers' Manual—Rayon and Silk . . . . . 136


## Men . . . . . .


Absenteeism: In Total War It Requires Different Treatment . . 74
Absenteeism: How One Mill Approaches the Problem . . . . 75
Absenteeism: Washington Studies Causes and Cures . . . . 78
Absenteeism: "It All Depends on Me" Posters . . . . . 79
Training New Knitting Employees . . . . . 108


## Materials . . . . .


Substitute Fibers Rise to Leadership in Knit Goods . . . . . 100
Handling Acetate Rayon in Full-Fashioned Mills . . . . . 107


## Mill Engineering .


Suggestions for Belt Maintenance . . . . . 92
Mill Maintenance Section . . . . . 115
Who Should Oil Machinery? (Pete & Bill) . . . . . 129
Maintenance of the Mill Water-Treatment Plant . . . . . 134



**For Contents by Industry Branches, See Next Page**


## Departments


**Textile Equipment News** ..... 113
**News of the Month** ..... 139
**New Publications** ..... 118
**The Overseers' Corner** ..... 129
**Question and Answers** ..... 133
**New Machinery and Processes** .... 113
**Textile Calendar** ..... 146
**Leading Editorial** ..... 73
**New Dyes and Chemicals** ..... 118
**News of Suppliers** ..... 120
**Free for the Asking** ..... 126
**News About Men** ..... 156
**Textile Mill News** ..... 170
**Overseers' Practical Helps** ..... 130
**Mill Maintenance Section** ..... 115



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## IN THIS ISSUE

# CONTENTS BY INDUSTRY BRANCHES


### TEXTILES IN THE WAR

Absenteeism: A Fancy Name for Playing Hooky (Editorial) 73
Absenteeism: In Total War It Requires Different Treatment 74
Absenteeism: How One Mill Approaches the Problem 75
Absenteeism: Washington Studies Causes and Cures 78
Absenteeism: "It All Depends on Me" Posters 79
Manual of Military Fabrics; Part III 88
Flameproofing Military Fabrics 90
Blends for 32 oz. Army Overcoating—80% Loom Efficiency 91
Olive Drab for Army Nurses 93
Knitters Essential, for Soldier or Civilian 98
Knit Goods For Military Purposes 102
Vat-Dyeing OD Army Underwear 104
Defects in Military Knit Goods 106

### GENERAL

Mills Establishes Its Own Non-Profit Institute for Research 86
Suggestions for Belt Maintenance 92
Post-War Changes in Textiles—Canadian Mill Men Discuss 96
Getting More Production from Present Electrical Equipment 115
Oil Viscosities to Use Under Various Bearing Loads 115
Reconditioning Worn Pump Shafts 116
Who Should Oil Machinery? (Pete & Bill) 129
Old Man Carelessness; No. 4 130
Maintenance of Mill Water-Treatment Plant 134
More Textile-Mill "E" Awards 138

### COTTON

Your Weave-Room Supply System Can Be Made Effective 80
Effective Layout of Cloth-Room Equipment 82
Callaway Intensifies Research 86
Manual of Military Fabrics; Part III, 8.2 oz. Twill 88
Temporary Harness Shaft Repair 130
Hank Clock Production Constants Determine Final Doff 131
Yarns for Weaving Duck 133
10 Years of Cotton-Textiles 137
Newnan Cotton Mills Reminiscences 152

### WOOL

Blends for 32 oz. Army Overcoating—80% Loom Efficiency 91
Olive Drab for Army Nurses 93
Producing Worsted Warp Yarns 132
Finishing Worsteds for Men's Wear 133

### RAYON & SILK

Defects in Combination Fabrics Traceable to Throwing 94
Handling Acetate Rayon in Full-Fashioned Mills 107
Throwing Rayon for Hosiery 110
New Shipping Case for Rolled Fabrics 113
Replacing Special Bolt 130
Throwing Bemberg Hosiery Yarn 133
Loomfixers' Manual—Rayon & Silk 136

### KNITTING

A New Knitting Industry in the Making (Introduction to Special Section) 97
Knitters Essential, for Soldier or Civilian 98
Substitute Fibers Rise to Leadership in Knit Goods 100
Knit Goods for Military Purposes 102
Vat-Dyeing OD Army Underwear 104
Defects in Military Knit Goods 106
Handling Acetate Rayon in Full-Fashioned Mills 107
Training New Knitting Employees 108
Throwing Rayon for Hosiery 110
Fixing Hosiery Machines—Full-Fashioned 111
Fixing Hosiery Machines—Circular 112
Throwing Bemberg Hosiery Yarn 133

### PROCESSING

Mercerizing: A New Approach for Better Results 84
Flameproofing Military Fabrics 90
Vat-Dyeing OD Army Underwear 104
Air Lift for Folding Machines 113
Squeeze Roll-Extractor 113
High-Frequency Drying Equipment 114
Welded Steel Drying-Cylinder 114
Water-Repellent Compound 118
Finishing Worsteds for Men's Wear 133


## IN THE NEXT

**THE MAY ISSUE** will contain an unusual number of articles designed to help the man in the mill meet the new production tempo. An outstanding feature is an article discussing in detail the properties of synthetic resins and other types of fabric coatings and indicating the probable post-war applications of each type. Change-overs in the weave-room will be treated in another article from the angle of efficiency and time-saving. To aid the cause of accident prevention is an article describing tests wherewith it is possible to eliminate that bane of the safety man's existence—the accident-prone worker.

During April a number of conferences are scheduled in various branches of the industry and the meat of these will be pre-digested for the busy mill man's consumption.

The fourth installment of our "Manual of Military Fabrics" will be given, and readers will be brought up to date on the latest Washington developments.


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To.....

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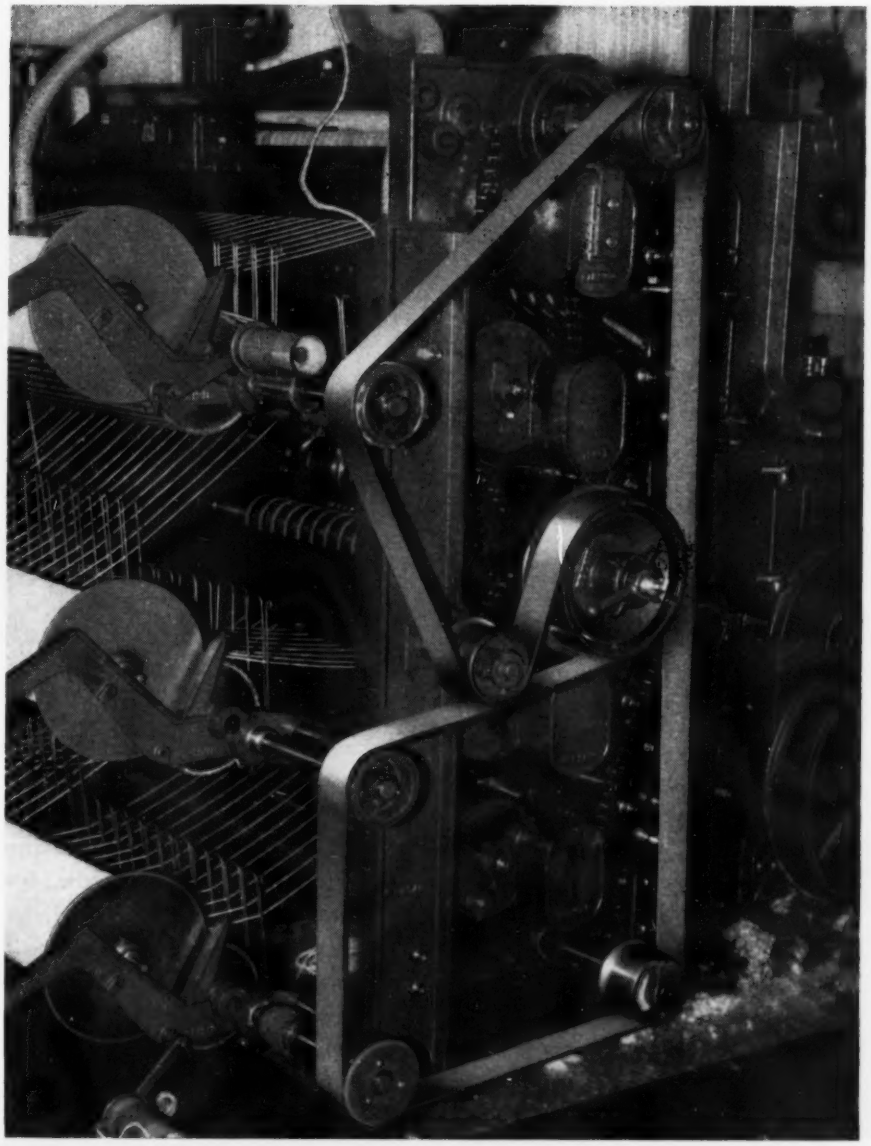

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## TEXACO Lubricants

### FOR THE TEXTILE INDUSTRY

TUNE IN FRED ALLEN EVERY SUNDAY NIGHT—CBS ★ HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY

# Food—The Deciding Issue

## *Our food problem remains to be solved*

THE first thing the Germans did when they occupied Czecho-Slovakia, Poland, Belgium, France—was to empty all warehouses. Everything went into trucks headed for Germany.

The Nazis knew that this war would be won by the army that had the most supplies and the best supply system.

The Nazis knew that supplies are as essential as guns. They knew that the most essential of all supplies is . . . food.

Being the only people on earth who can watch women and children starve, the Nazis seized upon food as their most powerful instrument for disciplining the masses. They added famine to their arsenal of conquest.

The flocks and herds of Europe are being consumed with alarming rapidity. The desperate shortage of meats and fats is growing steadily worse. Our Allies are short of certain foods that we must supply if we expect them to carry on.

And as we supply them, as our imports are curtailed, as our fighting men consume more than they do in civil life, and as we fail to increase our production rapidly enough . . . we, too, become short of certain foods.

Former President Herbert Hoover, speaking before a conference of the Governors and Representatives of twelve Mid-Western farming states in Des Moines on March 15th, sounded the warning that American agriculture, beset by Washington bungling on manpower, farm machinery and price systems, strangling production and distribution, is facing a deterioration which may bring on a national food shortage such as led to the collapse of Russia, the defeat of Germany in the first World War and the fall of France in the present war. Unless this deterioration is stopped, warns Mr. Hoover, we cannot hope to win the present conflict.

Complications of similar magnitude face the food processor and the distributor.

Never in the history of the world has man's dependence on food been so crucial. Yet it is not easy for us to grasp the full significance of the crisis. We are so accustomed to finding milk, eggs and butter on our doorsteps every morning, we are so used to filling our pantries from the shelves of our grocers and markets that we accept food as something that is due us on demand. We do not stop to think that we never are more than a few meals ahead of famine.

But this picture has changed. Now we are faced with food rationing, and every day the shelves of our food markets become more bare.

* * *

Let it be noted that the appointment of two Food Administrators has not solved the food problem. It is still with us; daily it becomes more critical. Unless it is solved, and solved quickly, the very food that ex-Food Administrator Wickard said would "win the war and write the peace" may lose the war and lose the peace.

Put very simply and clearly, the food problem amounts to this: we are trying to feed upward of 200 million people. We are trying to do it with the farms and other facilities that heretofore have been capable of feeding about 145 million people (our present population plus a 5% surplus).

Had the Government foreseen the need and planned ahead, we could have begun by 1941 the enlargement of our farm production and food processing capacity. Two irreplaceable years have been lost!

The gravity of the situation becomes apparent when we consider that 50,000 factories are required to process our foods. Food processing not only is America's biggest industry—it is one of America's most important for, without processing, most foods would perish before they could reach the consumer. The term "processing" covers the salting, drying, smoking, pickling, chilling, canning, packing and other methods of preservation that make it possible for us to eat in 1943 food that was produced in 1942. Few realize that most of the food we shall eat in 1943 was produced and processed last year, that most of the seed we plant this spring will grow food for 1944 or perhaps later.

In one important process of preservation, tin and rubber are vital materials. When the Japs captured Malaya and the Netherlands East Indies more than half of the world's tin and nearly all of its rubber fell into their hands. This forced drastic changes upon our entire food economy. The importance of tinplated steel containers, tops for glass jars and rubber gaskets is fairly obvious . . . metal food containers alone consume, every year, more than 2,700,000 tons of steel.

The aggression of Japan has snared our whole food industry in a maze of intricate packing problems. It has enforced recognition of a new principle of food technology, i.e., that the *method* of food preservation is determined by the *type* of container available. The tin, steel and rubber stringency compels many food processors to adopt

unfamiliar methods – methods that call for a great deal of new equipment. This, in turn, involves the use of critical materials that are so urgently needed for other war purposes.

This conversion of the food processing industry to meet these exacting restrictions has been greatly complicated by two factors that have increased its wartime burden. Indeed, it is these that provide the principal reason for civilian food rationing.

The first of these is the task of feeding our armed forces overseas. Allied ships are being sunk at an alarming rate and the loss of cargo is considerable.

The second factor gravely augments the first. Under Lend-Lease our country is undertaking to feed our Allies to the extent of approximately 60 million people.

Types of food required for Lend-Lease and the armed forces are the finest we can produce. They are the high protein foods, especially meats, cheese and milk; and the protective foods which rate high in vitamin content. Peculiarly enough, the more valuable a food is from a nutritive angle, the more specialized is the processing required to preserve it.

The food processing industry, handicapped as it is, is meeting today's challenge with resourcefulness and enthusiasm . . . despite container complications and shipping shortages.

*This is the tenth of a series of editorials appearing monthly in all McGraw-Hill publications, reaching more than one and one-half million readers, and in daily newspapers in New York, Chicago and Washington, D. C. They are dedicated to the purpose of telling the part that each industry is playing in the war effort and of informing the public on the magnificent war-production accomplishments of America's industries.*

It is accomplishing its Herculean task by resurrecting and modernizing a method of food preservation that is as old as mankind. Probably you have read a great deal about dehydration. You actually may have eaten dehydrated food, but right now nearly every bit of dehydrated food is earmarked for the armed forces or for Lend-Lease.

Food processing never will be as spectacular as the production of bombers or tanks. But under today's conditions, the performance of the food processor is no less important . . . no less inspiring. When we consider that dehydrated food is compressed into solid blocks with a density nearly equal to that of coal, so that almost a whole meal can be carried in a vest pocket, and that half of the shipping space is thereby saved in transportation, we begin to appreciate what the processors have contributed to meet the food problem imposed by the war.

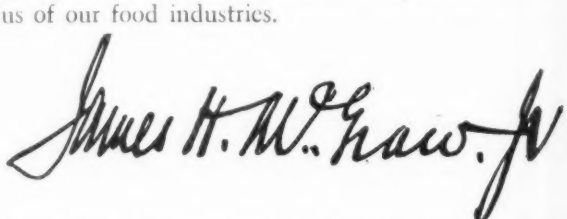
But they have not only contributed new methods, they are achieving new highs in production. And now they are asked to do what borders on the impossible. Consider dehydrated egg powder. Normal production in pre-war years was about 3,000,000 lbs. In 1940 this was increased two and one-half times, in 1942 it was stepped up again, this time forty-fold. And in 1943 the call is for another 60 per cent boost, to make a total of 480,000,000 lbs. Dried milk powder production of 350,000,000 lbs. in 1940 must be increased to 685,000,000 lbs. in 1943.

Vegetables, which were a small item to the processor before the war, now are dehydrated in enormous quantities. The vegetable dehydration industry has had to grow by leaps and bounds without benefit of the high priorities accorded to arms, ship and aircraft building. Production of dehydrated vegetables in 1942 was four times that of 1941, and 1943 calls for a sixteen-fold increase over 1942.

Total dehydrated food production in 1943 is scheduled at 1,750,000,000 lbs., dry basis . . . *all for export.* Multiply that by 10 and you have a rough approximation of the astronomical amount of raw materials that will have to be produced.

Many problems remain to be solved in the troublesome days that lie ahead. But with all his resourcefulness, man has little control over the weather. A severe drought could wipe out all of man's carefully laid plans. If we are tempted to reassure ourselves with the thought that the food situation probably is not so serious as it is painted, it will be well to remember that last year's crop increase over 1941 was due to better than average growing weather.

The war-bred food crisis that now confronts us will be met only by immediate measures to insure a food production ample to allow for adverse weather conditions. The food processing industry is capable, but has not been granted the needed help, in coping with its tasks. The food problem as a whole involves all three functions of production, processing and distribution. And if we are to master the problems that now beset us, all three of them must be coordinated under a single administrative control. "Food will win the war and write the peace". But if American food is to do that double job, we must develop a capacity for food *administration* comparable with the genius of our food industries.



*President, McGraw-Hill Publishing Company, Inc.*

Textile World

DOUGLAS G. WOOLF, EDITOR

# ABSENTEEISM:
# A Fancy Name for Playing Hooky

**IT'S TOO BAD** we have to give fancy names to so many of the good old-fashioned human failings. Absenteeism is a five-dollar word for playing hooky, which all normal human beings wanted to do when they were young—and did, if they had guts enough. It's a fancy name for the old excuse of the office-boy who had to go to his grandmother's funeral; for the spring-time alibi of the southern cotton-mill executive who was "in conference" when we called on him, but actually was fishin'; for the salesman's impulse to see a movie on a rainy day when calling on prospects was just damned uncomfortable.

It's a symbol of the urge which all of us feel to get away occasionally from the humdrum routine of business as usual, and to ride a Fifth Avenue bus, to sail on a Staten Island ferry, to go off in the country for an afternoon, to sit and think, or else to just sit. Any man, woman or child who hasn't felt that impulse needs a psycho-analyst.

And so we have to approach this problem of absenteeism—the subject of a series of feature articles in this issue—from a human standpoint. The absentees are not saboteurs. They are men who made enough thus far this week to take care of their immediate needs; women who found it took hours to do the shopping for the family; men with hangovers; men who felt like puttering around in their gardens; women who had tried leaving their children at home, with disastrous effects on the furniture; all of us, you and I and the other fellow who have much more excellent reasons not to work than to work.

**WHAT SHALL BE DONE** about it? Some students of the problem believe that there is no answer short of compulsion. Strongly as we believe in the necessity of a National Service Act, we recognize certain zones where compulsion is not the sole answer. Absenteeism is one such zone.

Its control requires the highest type of personnel management, involving morale-building, incentives, and welfare activities. Although the latter term has fallen into disrepute, because of its corruption into paternalism, there is in war-time the need for a certain amount of plain old welfare work. All of us need it. The pressure of over-work, worry about loved ones in the services, civilian shortages, fear of attack, and of all the other components of life in war-time, makes human consideration a doubly precious quality.

The causes of involuntary absenteeism must be removed in so far as possible—by day nurseries, loan funds, transportation facilities, easy shopping arrangements, victory-garden aids, etc.

Finally, the chronic absentee must be approached via the method of pressure from his fellow-workers. That is where the "or else!" factor—a form of compulsion—can come in.

It seems to us that Hugh Comer has found an answer which has the right balance among all these complex considerations. The story of his plan appears as one of this group of articles. It merits most careful reading.

Similarly, the attempts being made at Washington to reach this problem nationally; the experience in Great Britain; the "It All Depends on Me!" program of a supplying firm—all discussed in the ensuing pages—should be studied.

**BUT, TO REPEAT,** this is primarily a human problem. There is no formula for its solution. It requires a top spot in management effort today. We shall welcome suggestions from readers who have found helpful methods to keep the production-line moving, or who have questions which they want other readers to answer.

The more, the merrier.

Douglas G. Woolf

ARTICLES ON ABSENTEEISM ON FOLLOWING PAGES

**ABSENTEEISM** ★ ★ ★ ★ ★ ★ ★

# A New Form of an Old Disease

## Total war requires a different treatment from that applicable in peace time

**Great Britain has had the jump on us in absenteeism, just as in all manifestations of war-time psychology. She had a sharp increase in this phase at first, and since then, by painstaking work, has whittled the percentage down. The experience of that country should be helpful to American manufacturers.—*Editor.***

By A. WYN WILLIAMS

**IN PEACE TIME,** a plant manager could exercise selectivity in the retention of his employees and apply direct action, by discharging him, against the habitually bad timekeeper, who in the present total war has been given a new fancy name and is called an "absentee." Now every ounce of human energy must be drafted for full production, and the discharge of a bad timekeeper is not an ideal solution. Too often the difficulty of finding a replacement holds up production more than the irregular attendance of the absentee. Therefore in a total war, management is faced squarely with the difficult problem of having to keep the bad timekeeper on his payroll, while devising every means to cure him of a tendency to take a holiday whenever he feels like it.

In Great Britain, with its acute famine of manpower, the problem of absenteeism became serious in the first year of the war, and the Government, through its Industrial Health Research Board, conducted scientific investigations to try to discover the causes, and if possible, apply remedies.

These inquiries, as well as those carried out independently by industrial firms, have borne fruit. Absenteeism in general after increasing in the first two years of war—in some industries to alarming proportions—is now on the decline. In 1942 avoidable absenteeism in Britain was down from an average of 5.9% in 1941 to 4.22%. Even the latter figure is equivalent to the elimination of 1,000,000 industrial workers.

Great Britain now regards absenteeism as chiefly indicative of a breakdown in the physical rather than in the moral health of the worker. Where it occurs, more often than not, the spirit is most willing but the flesh too weak. It has been conclusively proved that fatigue is the principal factor conductive to absenteeism. A reduction in excessive working hours immediately reflects itself in better attendance.

This was clearly demonstrated by Britain's experience after Dunkirk. For two months after the fall of France official hours of labor were raised from an average of about 48 a week to 70 and 75. After the first two weeks there was a noticeable loss of productivity per worker and a sharp increase in absence from work without permission. The Government stepped in on July 25, 1940, before the extra long hours had been in effect a full two months, and ordered the working hours reduced. This step was at once reflected in better timekeeping.

The principle has now been adopted in Great Britain that, normally, the working week shall not exceed 60 for men and 55 for women, inclusive of overtime. The cotton-textile industry, after working for a short spell in the summer of 1942 an overtime week of 52 hours, is now back on a 48-hour basis, while the coal surface miners of Britain, in spite of an acute coal famine, average only 39 hours a week.

Excessive hours are not of course the only cause of physical fatigue, the principal factor in absenteeism. Monotonous, repetitious work is a contributory factor, as are also bad ventilation and improper lighting. Anything management can do to reduce fatigue in a worker during his hours of labor, whether by arranging short rest periods, providing music while he works or proper factory surroundings will result in greater fitness for work the next day and reduce absenteeism.

**THERE ARE TWO PROBLEMS** relating to physical fatigue with which Britain has been faced, which are only starting to cast their threatening shadows in the United States. The time a worker spends in going from his home to his place of work and back has a direct bearing on the time he gets to rest to make him fit for the next day's task. American war workers still have their privileged gas-rationing cards, but private automobiling has long vanished in Britain. Therefore most firms there have a transport officer whose sole duty it is to arrange the transportation of workers to and from their homes. The plant is more than repaid for this service by the better attendance resulting from the elimination of fatigue, colds and other consequences of a tired worker having to hang around waiting for unarranged transportation.

Similarly the importance of diet has been recognized. It is appreciated that a complete system of rationing, with unfamiliar foods, makes it difficult for the ordinary housewife to prepare the meals which will keep her working dependents at top notch physical condition. Therefore every factory in Britain, employing more than 250 workers, must have a canteen where hot meals are provided at reasonable prices and prepared with the scientific care that rationing requires with its strange substitutes for the normal fare of peace-time. Management in Britain has appreciated the lesson that proper feeding of its workers is related to physical fatigue and absenteeism.

After physical fatigue, the next most frequent cause of absenteeism is the necessity of employing a disproportionate number of new workers. The new worker is often a young person who has not acquired the habit of applied industriousness, and is therefore apt to take a day off whenever he feels like it; or he is a person transferred from a different environment to the strange exacting demands of industrial operations and is apt to become discouraged, with repeated absence from the work-bench when his courage becomes unusually low.

The new worker is the problem of the personnel manager whose task it is to get the newcomer into industry to adapt himself to his new surroundings as quickly as possible. Some firms in Britain make a practice of having a personnel officer familiar with all the processes of the plant visit each new worker at least once a day for the first

(*Continued on page 77*)

# "Mr. Foreman—Get the Pounds!"

## How one mill approaches the problem of absenteeism—A many-sided program

By HUGH M. COMER
*Executive Vice-President, Avondale Mills, Sylacauga, Ala.*

**AVONDALE'S JOB** is to "produce the pounds." We are never to lose sight of the necessity for production. Our present production is somewhat over 100% of an already high production obtained in 1939–1940. We are maintaining this new high level of production week after week.

We are busy constantly with our oiling program and with our overhauling program, both by our own maintenance men and by using outside overhauling companies. We maintain production by seeing that in no instance do we lack for supplies or repair parts; by maintaining a staff of engineers constantly checking our speeds and drafts, and weights of cloth, etc., to see that our manufacturing standards are maintained; by stimulating our transportation department; by maintaining a strict oversight of good housekeeping; by sanitation; by prompt attention to grievances, however slight; by accident control; and by all of the other phases of an intricate manufacturing program—not the least of which is *being sure* that the employees come to their work and take their places shift after shift, day after day.

Hugh Comer, with his slogan poster to stir employees to eat wisely.

People get tired; people feel bad; people need recreation, diversion, rest, society. People like to go to the movies, to prayer meeting, to dice games, and to basketball games. They love to "rest up a little bit." People are patriotic and they want to win the war, and they know all about soldiers and sailors being on tours of duty all the hours around the clock, Saturdays, Sundays, holidays and Christmas. Soldiers and sailors report to their duty by military orders, and, being soldiers and sailors, they respond without question. But mothers and fathers, uncles and aunts, brothers and sisters are not soldiers and sailors, and they can't be given direct orders, but they will respond to incentives, to intelligent leadership, and to intelligent guidance by their working associates.

In the latter part of 1941 and during the spring of 1942, our production reached unheard of and uncontemplated peaks. Everybody saw our country in war and all were throwing their whole being into the effort, but during the latter part of April and the first of May the pounds of production commenced to decline. A few machines here and there on Saturdays or on the "grave-yard" shifts were found to be idle for lack of operatives or because of an untrained employee who couldn't doff or piece-up. It seemed to me the people with whom I was associated, and I myself too, were a little tired. We were all getting to look a little brown; our hair had lost its luster and was curling up back of our ears; the old eyes were dulling up, and more and more we were staying away from our jobs.

A. E. Palmer, Avondale's garden expert, gives advice to John Holmes, John Garrett and N. O. Trussell. Jimmie Holmes looks on.

**OUR FIRST APPROACH** to this turning away from our work, which is now called absenteeism (also the new phrase "industrial fatigue") was toward the health angle. We discussed the matter with our various medical departments. We got in touch with our State Health Department with which we opened up the subject of industrial nutrition. Through the United States Health Department we got in touch with the National Research Council, which sent doctors skilled in industrial nutritional

# ABSENTEEISM

Mrs. Carolyn Young (right), Avondale's nutrition director, at work.

work to visit our plants. These men were just completing a nutritional study of the industries in Bridgeport, Conn., and so were fresh for the job of studying our program. Their staff stayed with us for about a month, visiting in the homes of our employees; studying the capacities that we had for vegetable gardens; studying the sources for additional milk and fruit juices.

They made recommendations for lunches to be sold in the mills; made connections for us with suppliers of fruits and other foods of nutritive and balanced qualities. We installed the practice of serving soup and crackers and coffee at one o'clock in the morning to those employees at work on the "grave-yard" shift. We were taught to form classes in nutrition among men and women, parent-teacher associations, school children, and local civic clubs. We were furnished incentive posters of all kinds, moving pictures, etc.

We employed a young woman, Mrs. Carolyn Young, to direct our nutrition program. She had been a teacher of home economics in one of the nearby rural schools. She is a graduate from Auburn, having majored in home economics. She is the daughter-in-law of one of the local preachers and is in complete understanding of her environment. We found that preachers were glad to turn over to the nutrition program their Wednesday night prayer meeting and advantage was taken of their willingness many times.

We have adopted the slogan "Eat to Beat the Devil," realizing that you won't come to work unless you feel good—you won't feel good unless you eat good—and you won't eat good unless you have good things to eat—and you won't eat wisely unless wise people tell you how to eat. Frankly, I used to sit down to fried chicken, grits, gravy and other grand things thought up by that little old yellow-haired gal I am married to, but now, bless your heart, we look in the *Ladies Home Journal* to see what we are going to eat for supper. And then I take a couple of shots each week of B-1 vitamins.

We have engaged the full time service of an expert gardener, A. E. Palmer. We finished up the summer with a noble set of fall gardens. We went through the winter with any number of winter gardens and now we have got every available area of land plowed up ready for spring gardens—but mind you, we don't have a single company garden — every garden is plowed, planted and manned by its owner. No free seed or plants are distributed.

We have had for the last year a plan permitting a week's vacation with pay. As employees became eligible for this week's vacation, we asked them to stay on the job and just take the money, but we have changed this policy and now are asking the employee to take the vacation and let us pay him, or her, for the week they are out. We have discovered fully, and without question, that the employee who has met the requirements of his vacation with pay needs the week's rest.

We have settled on a safety program in a big way. We finished 1942, having worked approximately 13,000,000 man-hours with a frequency ratio of 1.74%. We are nearly through March with over 3,000,000 man-hours with a frequency ratio of 0.93%.

Heflin Haynes shows Honor Roll to E. S. Dunn, general superintendent.

**OUR THINKING** toward mill management places the responsibility for the management of the mills flatly in the foreman's lap. We have discovered that under similar conditions of management one overseer will run a clean room while another will run a shabby room from housekeeping angles. Under similar conditions one foreman will get better production than another; one foreman will have more grievances than another. So, we hold that no matter how much the management tries, the job ultimately belongs to the foreman. Consequently, for absenteeism, we place the responsibility without any question in the hands of our foremen.

We have for a long time had a rule that foremen must make a certain num-

ber of visits a month to the homes of the employees under his direction. We have found that both the foremen and the employee like this practice. Every Monday morning in each department we post an honor roll containing the name of every worker who has made each of his shifts during the previous week. On the same bulletin board we post three other lists giving the names of those who were absent one day, the names of those who were absent two days and the names of those who were absent three or more days. It is now the duty of the foreman to get in touch with the people who have been absent and impress on them, as best he can, the necessity of their reporting to their duty. He has the privilege of calling on the medical staff, on the visiting nurses, or on Mrs. Young. The foreman has the use of the company automobiles to send after those people who haven't come to work and who he thinks will come if they know they are needed particularly.

We are using Heflin Haynes, the one-time manager of our Florida Camp, to keep in touch with the War Production Board and see that the mills are furnished with the current issue of incentive posters. It is his duty to furnish speakers to come before various groups, and, due to his efforts, we have had come to speak to us generals, colonels, majors and captains, and, in one instance, a German Jew, a boy who escaped from Germany in 1935, came to America, was naturalized, and is now a private first class in the army. Mr. Haynes' duty also is to obtain from the War Production Board their incentive moving pictures and to show them to groups of our workers. We have just bought the film made by Eddie Rickenbacker, and we propose to show it to every one of our 7500 employees. Mr. Haynes is giving his full time to this work. We find the local army camps only too glad to furnish speakers. In one instance, we closed down one mill for 30 minutes and had an officer from the Birmingham Air Base address the assembled employees of that plant.

N. O. Trussell, of Avondale, cultivating plot adjoining his home.

We have in our mills what we call "working committees." These are groups of workers selected by their fellow-workers. It is their job to help the foreman run the mill in every way; making suggestions as to housekeeping, safety, production, economics, proper use of supplies and repairs, and all types of unpleasantnesses that may arise. These committees have been very useful to us in the last few years. The names of people, who it is discovered are staying away from their work for trivial causes or because they seem to lack the knowledge that their presence at work is of prime importance, are turned over to this committee and approaches are made to delinquent workers by their fellows. This approach has been very useful and the response entirely satisfactory.

I don't know how to measure the result of these efforts. We still have people who don't come to work, but we are still maintaining pounds. And I think this is because we have prettied up; we have painted up; we have plowed up; we have eaten up; and we have worked carefully and safely, and we are trying to produce the pounds. Mr. Foreman—Get the pounds!

# A New Form of an Old Disease

(*Continued from page* 74)

couple of weeks of his employment. This tends to make the new worker feel himself more quickly a part of the organization, and he is far less likely to go fishing when he feels that he would thereby be letting down an organization in which he is personally interested.

That the new worker is a real problem is proved by the fact that in Britain avoidable absenteeism has always been highest in aircraft plants, tank and shell-filling factories, all wartime mushroom organizations employing a disproportionate number of new workers carrying over no tradition from peacetime and having no loyalty for the firm.

**THE THIRD PRINCIPAL CAUSE** of an increase in absenteeism is the introduction of women into plants in ever-increasing numbers. In a survey of absenteeism in the Lancashire mills for March, 1942, it was found that the female workers were twice as bad offenders in absenting themselves without cause as the male, with the married women showing up worse than the single ones.

Family responsibilities were given as the chief reasons for their unwarranted absence from their looms, with shopping difficulties ranking first among the excuses, and family illnesses another frequent excuse. To meet shopping difficulties which will become more acute as rationing is extended, possibly the system of staggering the employment of women so that they will get at least one afternoon a week off may be found advisable in this country as it has in England.

The above causes of absenteeism are all which good management can take steps to reduce. Britain found, however, that there is one class of absentee that is not responsive to anything that management might do. This is the worker, chiefly in an age group between 25 and 50, who takes time off when his wage for the week has reached the level of what he can spend. No appeal to patriotism or loyalty to a firm will make this type of worker stay on his job for the full week.

To solve his problem, the Government is lending management a helping hand, and, since the beginning of 1942, the emergency war powers are being used which makes a recalcitrant worker liable to an exorbitant fine or imprisonment for two years. That these powers are not being used extensively, is proved by the fact that only about 250 workers, or one in 30,000, have been prosecuted for absenteeism and only one in 185,000 sent to prison. But while the Government has to have ruthless powers and the courage to use them, the experience of Britain is that absenteeism is principally a problem for good management to solve.

# Washington Studies Causes, Cures

## Will make suggestions to industry, but actual job is a local one

By BLAINE STUBBLEFIELD

WASHINGTON, D. C.

**MORE WORKERS** are taking more days off from war jobs. Employers, Washington administrators, the press and especially Congress, are increasingly concerned about it. They all call it "absenteeism" for lack of a better word, and it is cutting into many lines of production, including textiles.

A fairly sane and fairly adequate solution of this problem is due out of the War Manpower Commission any time now. The Commission, and WPB, are making a field study of what causes workers to take French leave for a day or two or three. Analyses of these causes, with general suggestions what to do about it, will be distributed among employers. Field agents of WMC will offer their assistance. From there on worker absence will be a multitude of local problems involving cooperation between local authorities and employers.

Serious-minded investigators say it is silly to speak of absenteeism as something that is done by a large number of irresponsible workers. About 65,000,000 people are now working on production or services directly or indirectly contributing to the war effort. Most of them, from the chairman of the board down to the girl who oils machinery, have to take time off to do chores that will not get done otherwise. Some of them stay away from work to play or to recover from play.

Absenteeism, which is not an "ism" at all, divides itself into two types: excusable and inexcusable. There are definite causes of, and therefore partial cures for, both kinds. But they will be only partial. We shall have to live with a remnant of this nuisance, even after the best remedies are applied.

With nearly half of the population gone to war work, and several million gone to war, the first consideration is whether or not some of the workers shouldn't be sent back home.

One of the major causes of absenteeism is the presence of a greater proportion of women on all production jobs. A survey finds female employees absent more than twice as often as male.

A mere list of the causes of worker absences would take pages of type. Washington does not yet have any data on specific industries; such facts as WPB and WMC have collected are general. Among the inexcusable causes is drunkenness. General William Knudsen found that rum had seriously slowed production in one town, and he found workers' living conditions and lack of amusement facilities actually driving them to drink.

Another cause is proximity to military camps, whose soldiers want a night's dancing with the girl workers, who afterward stay home to sleep. This difficulty has been fixed in some instances by getting the dance managements to change their hours. Plain shiftlessness is a major cause. This one is met by morale builders, such as posters, rewards for good attendance.

Under the head of more or less excusable causes are sickness, uncertain transportation, and bad weather. One of the worst and most prosaic is laundry trouble, according to reports coming in to the researchers. Laundries are unable to serve crowded new communities, and men and women have to stay home and wash their clothes. Dreary housing causes much absenteeism; workers just get tired of their four walls and go home to see their folks.

You can go on with your own list of causes at leisure: the worker has to get married; his wife has a baby; he must attend a relative's funeral; a visitor has to be taken to the train. A substantial percentage of the workers have never had jobs before and are undisciplined. An experienced employee would take all these interruptions in his stride, but not the new one.

**SOME OVERALL REMEDIES** already have been mulled over in Washington. One employer testified before the House Labor Committee that his policy of firing workers upon the third unjustified absence had brought good results. But WPB investigators don't think much of the system, unless each case is looked into. Some workers are more adroit than others at making up stories.

The experts are about to decide that negative appeals are ineffective. For instance, some employers have been putting facsimile German marks in pay envelopes with a notice that they are compensation for absences which have helped Hitler. This measure seems to humiliate the workers and make them sore, with no good result.

Some observers think the Johnson bill, which makes unexcused absence from war work a punishable offense, might be passed by Congress. But most reliable opinion is that it will do very little good even if it does become law. It would take half of the workers—exaggerating a little—to police the other half.

One of the important causes of no-show employees is job hunting. Bill meets Jake and learns that Jake earns more money by 20c. an hour, in some other industry. So Bill goes shopping for a new job. He never comes back to his old job, but his employers call him absent for a week or so.

Unfortunately it is impossible to equalize wages for given skills throughout industry. There are both military and civilian ceilings on the prices of cloth, which definitely set a limit on wages that can be paid in the production of textiles. The War Department will readily admit that cloth is as important to victory as guns. But ordnance pays bigger wages for greater skills and textile workers drift in that direction, attaining the skills or hoping to, first as "absentees" then as "quits." Not much of anything can be done about this except to raise the ceiling prices on cloth. Bills have been introduced in Congress with that intent, but their outcome is uncertain.

Absenteeism is largely a local problem. You will soon get some advice and assistance from the Manpower Commission. In the meanwhile, you are advised by WMC and by WPB, to study the causes, and try to figure out what measures your management can take, and what measures the community can take, to relieve them.

# "It All Depends on Me"

## How one firm uses this theme —A direct hit at absenteeism

**FOLLOWING PUBLICATION** in TEXTILE WORLD of the editorial and article on the "It All Depends on Me" movement in England, one of the many reactions we got from the field was from the Reliance Electric & Engineering Co., Cleveland, Ohio. At that company's request, we put it in touch with Eric L. Colston, the originator of the idea in England. The company writes us as follows:

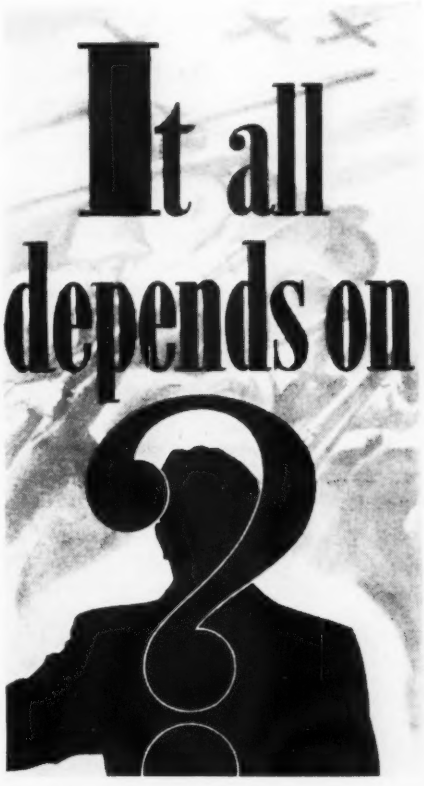
"Following your letter of last August I had some interesting correspondence with Mr. Colston and we have exchanged material of mutual interest.

"You will find enclosed a copy of the booklet as we prepared it for distribution to our own employees and our entire mailing list.

"I felt that this idea was so basic and concerned so many of the war problems that we developed it with the thought that others would wish to carry it along.

"In addition to the booklet we developed a series of posters, samples of which are being sent to you separately. The first two of the series were of the teaser type to stimulate an interest in reading the booklet. The three colored posters are basically the same as corresponding posters sent me by Mr. Colston. The photographs were, of course, changed. You will find included with the sample posters an outline of procedure which we followed.

"We made arrangements with our printers so that they have the privilege of promoting this idea with others, making use of any of the printed material.




We plan to cooperate further in keeping the idea going. Already we have received requests from several companies to make use of some of this material."

On this page are reproduced a few of the posters used in the Reliance campaign.

This teaser poster began the campaign, stimulated initial interest, started talk.

The above appeared on mirrors in washrooms, gave a clue to one who saw his own face in the glass.

This symbol was used on numerous posters dramatizing war work to tie them into the campaign.

With the above poster the initial question was answered.

# Your Weave-Room Supply System

## Can be made more effective by proper bin arrangement and card index system

By WILLIAM A. NEWELL

**THE WEAKEST LINK** in the chain of efficiency of many a weaving department is the weave-room supply room. In most instances this is due to the fact that there is no system of control in the supply room whereby its functions can be carried out efficiently. These functions are: (1) to keep parts and supplies always available; (2) to locate and furnish these parts and supplies quickly; and (3) to know when and how much of the supplies to reorder when available stock runs low. The control system described below has been tried and found good in several mills. It can be applied with few alterations to any supply room, regardless of the number or variety of looms it supplies.

Before any system can be installed, a supply room must have numbered bins. A survey of numbering systems has shown the following to be the most efficient: Each row or section of bins is given a letter—A, B, C, etc. If a section is double sided, each side or face is given a letter. Then, starting with the horizontal tier of bins nearest the floor, the tiers are numbered 1, 2, 3, etc., working upward to the top tier. Next, starting at one end of the section, all the vertical rows are numbered, 1, 2, 3, etc., so that all No. 1 bins are in a vertical line, as are all No. 2 bins, No. 3 bins, etc., but each in a differently numbered horizontal tier, and each in a different section. Thus, the bins may be designated with a letter and three numbers. For instance, Bin 411 is in Section B (denoted by the "B"), 4th row up (denoted by the "4"), and the 11th bin in from the end of the section (denoted by the "11"). The arrangement of the bins and the numbering system are shown in Fig. 1.

The key point of the entire system is the card file. In designing the cards, it has been found that the vertical type card (longer than it is wide) is the most easily handled, and the most durable. A card suitable for use with this system is shown in Fig. 2.

To fill in these cards, the loom catalog supplied with each type and order of looms in the mill must be used. The cards are filled in by starting with the very first part listed in the catalog, and its number and name are copied onto the card in the spaces provided. Loom catalogs always separate the parts into motions, such as picking motion, let-off motion, warp stop motion, etc. As the name and number are written on the card, the bin number to which the part is assigned should be written in. The next part is put in the next bin, and successive parts are placed in successive bins. In this way, when all parts are assigned to their bins, the entire motion is kept in one unit section of the bins.

As the parts are being assigned to the bins, the person doing the work should note the size of the piece, and, if only a tiny part (such as a spring), he may be able to find another small part to share the bin. If this is done, the bin should be sectioned, and referred to on the card as Bin B607A and B607B. Very often different loom orders have some different part numbers, because of improvement in parts between purchases, or addition of new parts to loom models between purchases. If there is more than one catalog (there should be one for each order), the other catalogs should be gone through, and cards made out for any numbers not listed in the first catalog supplied by the manufacturer.

All this marking of cards should be completely done before any changing of parts is done from one bin to another. When the day of changeover arrives, it will be found that there are many parts for which there are no cards. This is probably because an improvement has been made in the part, and a newly numbered part has replaced all the old parts of a given type. In this event, the name of the part should be found out, the old number found in the loom catalog, and on the card of this old number should be written "Do not mark this card—See No. ....." The number referred to would be that of the new part. In this way, any parts brought in for replacement which bear the old number can be replaced with the new improved part, and all deductions made from the correct card. When a replacement number is found, the old number in the loom catalog should be changed to prevent confusion and loss of time when a re-order is made.

**ON THE DAY OF CHANGEOVER,** as the parts are put into their new bins, they

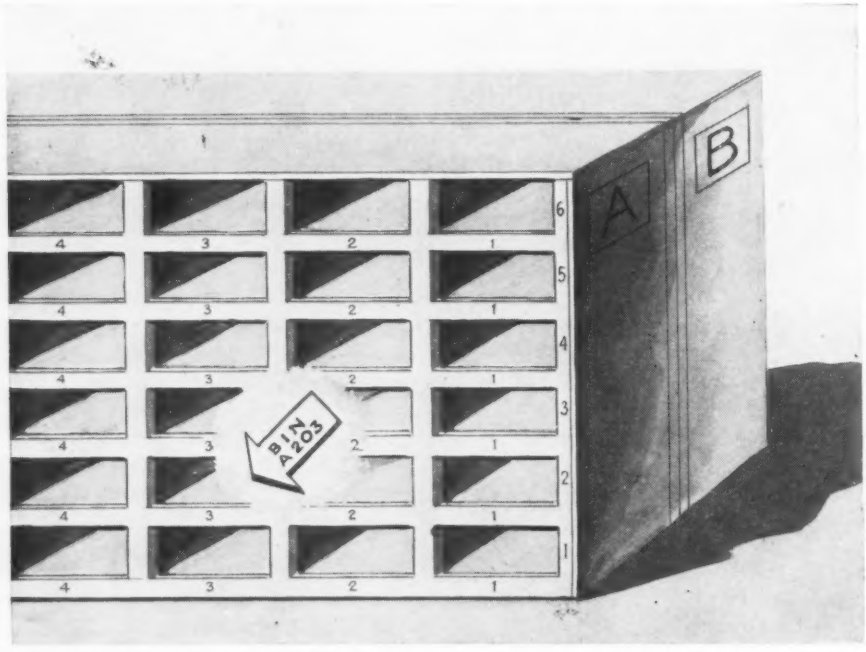



Fig. 1. Numbering system for bins in supply room of weaving department.

should be counted, and the number entered on the "In" column of the card. When this is fully completed, and all cards are marked, the cards should be arranged so that the part numbers are in numerical rotation; e.g., L 17906, followed by L 17907, etc.

The cards are arranged in the file by make of loom, then by the key letter (if any) which are on the part numbers; that is, all "L" numbers would be kept together, as would be all "L's" and "S's," etc. In this way, the cards can be located quickly, and confusion is prevented when there are two identical numbers, but each with different letters. The letter is also important in ordering.

If there is more than one make of loom, all parts of one make of loom should be kept separated from all parts of another make of loom. When there are RH and LH parts, these should be kept separated as widely as possible to prevent mixing, but still kept within the section devoted to the particular motion from which the parts are individual members.

In general, nuts and bolts are all kept in one large section by themselves. These should be kept classified by diameters in vertical rows, with the shortest in length at the top and running to the longest and heavy parts stored at the bottom.

Parts not made by the loom manufacturers, such as check straps, lug straps, pickers, etc., should be kept together according to the material of which they are made. Thereby, if a fixer brings a leather strap to be replaced, it can easily be located among the leather goods. Usually the card system is not employed for these supplies, nor for the nuts and bolts. These supplies, as well as the nuts and bolts, are preferably kept near the window through which the supplies are given out.

**OPERATION OF SYSTEM.** Now that the system is installed, this is the way it works. A part is brought to the supply room for replacement. The stock man looks at the part and finds it to be number L 14705. He goes to the file, consults the cards under "L," finds L 14705, and notes that it is in Bin C 521. He goes to section C, 5th row up and 21st bin over, takes the desired part, checks it against the part brought for replacement, and, if the same, gives it to the fixer. Then the stock man returns to the card, writes the date, the quantity given out in the "Out" column, his initials in the "In" column, and the new balance.

When a new shipment of parts is received, the date is written as before, the number received in the "In" column, the initials in the "Out" column, and the new balance in the "Balance" column. When a part is given out, and the proper deductions are made, the new balance should be compared with the minimum at the top of the card. If the balance has reached the minimum, a yellow signal tag is attached, as a warning that this part needs to be re-ordered.

If, through someones carelessness, the balance has been allowed to fall below the minimum, a red signal tag is attached to denote that an immediate re-order may be necessary. In either event, when the part is re-ordered, the yellow or red tag is replaced with a green signal tag which remains on the card until the order comes in, is counted, placed in the bin, and the new balance entered on the card by the stock man.

If a fixer brings a part for replacement on which the number is worn or illegible, or which bears no number, such as a stud, the stock man can get the loom catalog, and ask the fixer to point out the part in the picture accompanying the parts list of each motion. When the part is located on the picture, its name and number can be found in the parts list, and, with the number as a basis, the part found as before. Even if the part number cannot be found, the stock man can go to the section of bins housing all parts of that motion, and by searching through a comparatively small number of bins, find the desired part.

Figures for Maximum, Minimum, and Standard Order (S. O.) cannot be filled in until the system has been in operation for a few weeks, and the number of parts used per day and the number of days required for new part orders to arrive from the loom companies have been noted. When these facts are known, the following formulas may be used to determine these quantities:

1. Minimum = (Number used per day) × (Number of days required for order to arrive) + (Safety Factor).

The safety factor should be between five and ten parts.

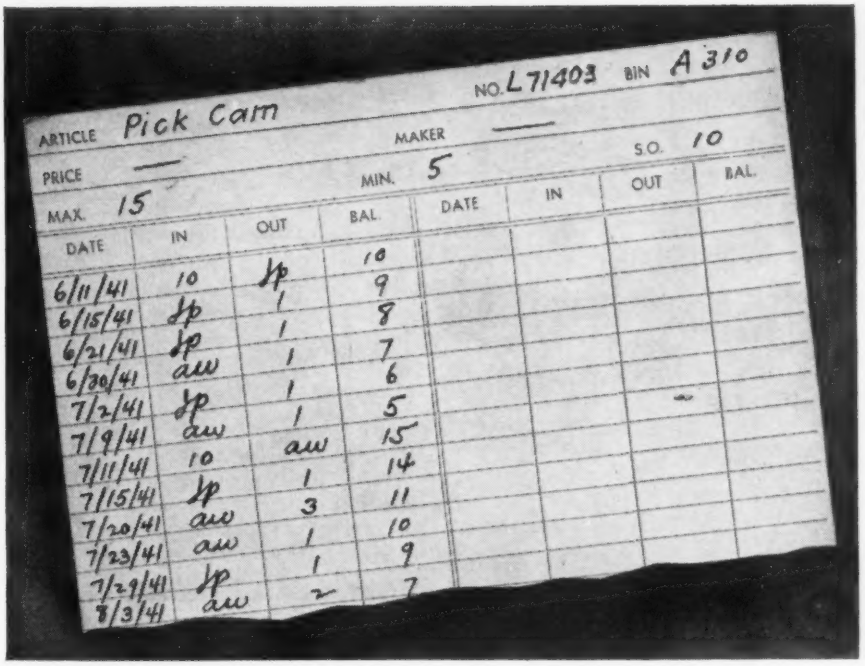
2. Standard Order (S. O.) = (Number of parts used per day) × (Number of days inventory desired to be kept on hand) + (Minimum).

The number of days inventory to be kept on hand has been found to be best at 60 days, or two-months inventory.

3. Maximum = (Minimum) + (Standard Order).

In ordering, use the loom catalogs extensively. Be sure in your order to give clearly the quantity desired, the full part number, letters and all, and the full part name. Do not use local slang terms for part names, such as "gooseneck" or "snakehead." Be sure to denote whether LH or RH parts are desired. Do not write "RUSH" on the order.

Nine out of every ten orders that are received by the loom companies are marked "RUSH," and therefore must be handled in the order in which they are received. If you are really in a hurry to get a part, wire or telephone the loom company, and your order will then be certain to receive special handling and preference.


ARTICLE Pick Cam NO. L71403 BIN A 310
PRICE — MAKER —
MAX. 15 MIN. 5 S.O. 10

| DATE | IN | OUT | BAL. | DATE | IN | OUT | BAL. |
|---|---|---|---|---|---|---|---|
| 6/11/41 | 10 | lp | 10 | | | | |
| 6/15/41 | lp | 1 | 9 | | | | |
| 6/21/41 | lp | 1 | 8 | | | | |
| 6/30/41 | aw | 1 | 7 | | | | |
| 7/2/41 | lp | 1 | 6 | | | | |
| 7/9/41 | aw | 1 | 5 | | | — | |
| 7/11/41 | 10 | aw | 15 | | | | |
| 7/15/41 | lp | 1 | 14 | | | | |
| 7/20/41 | aw | 3 | 11 | | | | |
| 7/23/41 | aw | 1 | 10 | | | | |
| 7/29/41 | lp | 1 | 9 | | | | |
| 8/3/41 | aw | 2 | 7 | | | | |

Fig. 2. The key to the weave-room supply system is the card file; illustrated is one of the cards (original size 5 x 8 in.).

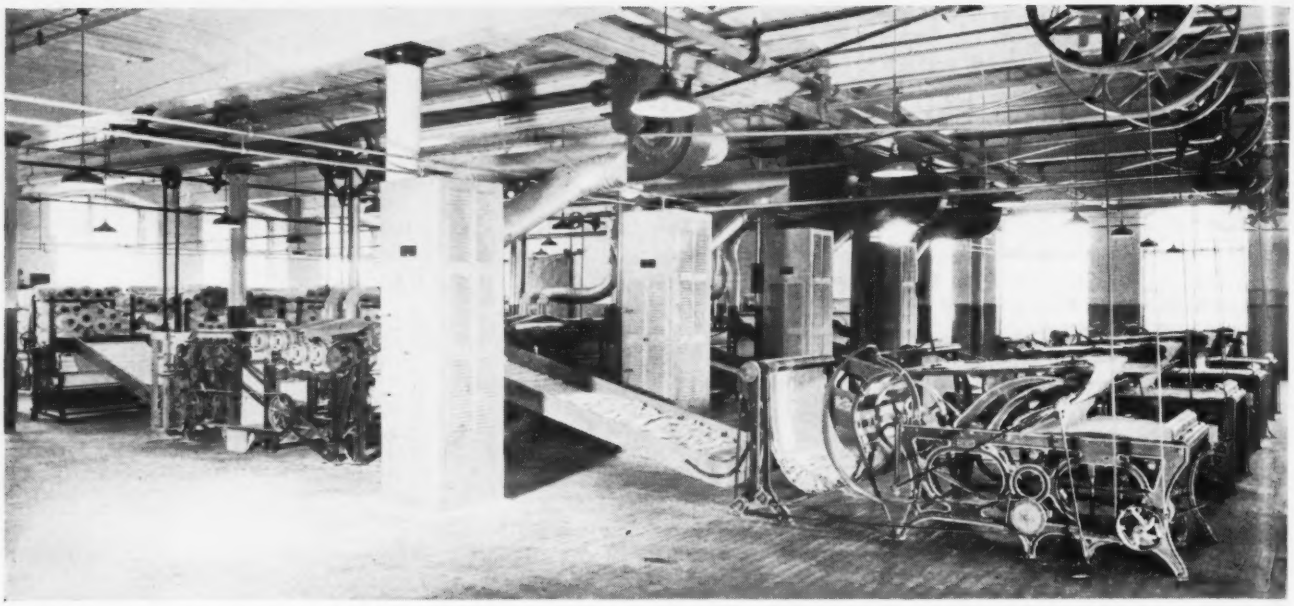


Fig. 1. Sewing machine, brush and shear, and folder are connected by scrays to secure a straight run of the fabric.

# The Cloth-Room Is Streamlined

## Woodside Cotton Mills has worked out a highly efficient layout of equipment

By THOMAS O. OTT, JR.
Southern Editor, TEXTILE WORLD

**THE CLOTH ROOM** at Woodside Cotton Mills, Greenville, S. C., is a source of pride to executives of the company. And justifiably so. Over a period of years improvement after improvement has been made in the arrangement of equipment and one after another labor and time-saving devices have been installed. As a result, the cloth room at Woodside has the reputation today of being one of the finest and most efficient in the South. Following is a description of some of the more advanced features of the set-up.

Cloth-room machines, from sewing machine to folder inclusive, are connected by scrays and guide rolls to eliminate handling of the cloth in the roll, and to secure a straight run of the fabric. This arrangement is shown in Fig. 1. Rolls of cloth from the loom are loaded in the cradle of the railway sewing machine, and stitched to the end of the last roll run; folded bundles are doffed from the folders and placed on flat-top storage tables behind the inspectors. Bundles are secured from storage tables, and placed on the inspection tables. Inspected bundles are pushed onto an endless conveyor belt and travel to the baling press at one side of the room, where they are checked and baled.

The railway sewing machine has an 8-ft. scray between it and the back of the brusher. This scray is made of wood and has a steep drop. Positively driven wooden rolls at the top of the scrap unroll cloth from the sewing machine cradle. Speed of unrolling is regulated to keep a supply of cloth ahead of the brusher and allow for the time used by the operator in loading the cloth in the cradle and stitching the end of the roll to the tail of the roll just run off. A mechanical shipper lever for control of the main drive of the brusher and shear and an electric switch for control of the individual motor-driven shear blades, are located at the railway sewing machine close to the operator's left hand, as can be seen in Fig. 2.

**BRUSHER AND SHEAR** are driven in tandem as one continuous machine at a speed of 96 yd. per min. The brusher delivers cloth under wooden guide rolls, a few inches above floor level, to the shear. Brusher and shear were spaced to form an alley, and a low wooden platform was built over the wooden cloth guide rollers, so a worker can pass over them to clean and adjust the machines. The shear delivers cloth to a 14-ft. wooden scray that supplies the folder. The railway-head operator coordinates the sewing machine, brusher, and shear so that cloth is delivered at an even rate to the scrays. The operator at the sewing machine can observe the condition of the cloth without leaving her post, and thus can prevent cloth overloading in either scray.

The folder has an intermittent operation of folding and doffing and runs at a speed of 126 yd. per min. so as to stay ahead of the brusher. A hand-controlled, air-operated plunger moves the folder drop table. Men operate the folders because of the necessity of doffing a large number of heavy bundles. The folder operator can stop the shear blades by throwing the electric switch on the folder frame near his right hand, Fig. 3, thus preventing damage to the cloth by the shear blades. Each folder operator supplies three inspectors equally with bundles by keeping a stock of folded cloth ready on the storage table just behind each inspector.

The storage table is covered with fiberboard to provide a smooth surface. Production of the inspectors can be checked by observing the number of cloth bundles on the table. Inspectors have sliding panels of fiberboard on their side of the storage table; these are used to slide the heavy bundles to the inspection table. Panels are pushed into the table when not needed, thus clearing the work alley.

**INSPECTION** of the folded cloth is carried out on a long flat-topped table (Fig. 4) covered with heavy linoleum. This table, which has space for twelve women inspectors, is at right angles to the four lines of machines supplying the inspectors. Two endless-belt conveyors, operating parallel to the long side of the inspection table in front of all inspectors, carry inspected fabric to cloth checkers and baling presses. Another inspection table for five women who handle the second-shift cloth is placed on the opposite side of the conveyor facing the first table. Stools with tilted seats and footrests are provided so the inspectors can work in a comfortable position. The inspectors inspect and grade the cloth, and remove grease spots with a special scraper, scrub board, and spotting agent. Seconds are reported to the weave room smash hand, who brings in the weaver to see the bad cloth. Inspected bundles are pushed onto the endless conveyor with a hand stick to eliminate reaching over the table. One girl picks cloth bundles from the conveyor at random and reinspects them.

Each endless conveyor consists of two canvas belts that run over wooden drums and rollers. The conveyor is driven by a small electric motor connected to a wooden drum. A wooden flapper apron linked to an electric switch stops the conveyor motor whenever a bundle of cloth presses down on it, thus preventing the conveyor from dumping cloth on the floor when the operator is busy, elsewhere. Springs return the flapper to normal position, thus starting the conveyor motor when the cloth bundle is removed.

A checker lifts bundles from the conveyor to a special truck (Fig. 5) and tabulates yards on an adding machine slip. These special trucks have false or removable bottoms and pipe cloth supports on one side. Burlap and paper are placed on the false bottom, with extra material rolled up, and a full bale load is then put on the truck—bundle by bundle. The checker pushes loaded truck to the bookkeeper who weighs, records, and tags cloth and pushes loaded trucks to the baling operation.

**BALING PRESSES** have two endless leather belts on pulleys at two sides of the press-bed rotated by a two-way, air-operated plunger, and cable arrangement. Rings on belts catch iron hooks on the truck's false bottom, and carry the cloth load from the truck into position for pressing (Fig. 6). Bale-press operators unroll extra baling material, cover the sides of the load, and start the press. Baled cloth is trucked to the stock room, where it is placed in bins for future shipments.

An air-operated lift is used for access to a basement room where cloth-room supplies are kept. This lift operates on 60-lb. air pressure, which is the same pressure used throughout the room.

Fig. 2. Women load and operate sewing machine, and control the brusher and shear.

Fig. 3. Men operate folders and raise or lower drop table with hand-controlled, air-operated plunger.

Fig. 4. Two endless conveyor belts operating parallel to the inspection table carry cloth to the checking and baling operations.

Fig. 5. Checker unloads cloth from conveyor and loads special trucks to go to baling operation.

Fig. 6. Operator guides cloth load into press.

# Mercerizing—A New Approach

## Mill experiments led to adoption of revised methods giving better results

By A. C. TATE

**Although the following article relates specifically to the results obtained from mill experiments in mercerizing cotton piece goods, the general procedure followed in making the tests is applicable in checking up on other manufacturing and finishing operations. Such experiments may show that long-established ideas do not hold true under specific plant conditions and that revision of methods now in use will give better results at lower costs. It should be noted that the mercerizing procedure yielding best results in one plant may not be the most satisfactory in other plants finishing other types of fabrics and using other types of equipment. Mercerizers are cautioned, therefore, not to adopt the methods found most suitable in the plant where these experiments were carried out, but to make similar studies in their own plants to determine the strength and temperature of solution, length of treatment, and other conditions which produce the highest luster, best dye value, and lowest cost on those types of fabrics which they are processing.**

★ ★ ★ ★ ★

**MERCERIZING**, since its infancy, has remained something of an art, despite the great amount of scientific investigation that has accompanied its development during the last 40 years. Considerable research has been carried out to determine the conditions under which the maximum mercerizing effect can be obtained. Unfortunately, however, any perusal of the literature will reveal a number of inconsistencies which serve to confuse the practical mill man who is interested in doing the best possible job at the lowest cost.

Working conditions today have changed greatly since the advent of mercerizing for strength and luster first became well established in the early years of the century. Finishing plants took up mercerizing as a new process of enhancing the value of the fabrics and thus the price of their services. Less dye was required to produce a given shade on mercerized fabrics, and, by proper finishing, an almost silky luster was obtained. In those days, shrinkage of goods was controlled in only one direction—the warp. Any lot that closed out at less than 105% of the original length was suspected of having been tampered with.

Under present conditions of operation, involving keener competition, Sanforizing, and a generally tighter price structure, mercerizing becomes a process that bears close watching, as the benefits may be outweighed by costly losses in yardage and uneven dyeing.

Mercerizing equipment today varies considerably, from complete units equipped to concentrate and recausticize the wash waters, to elementary rigs which consist of a few spray pipes over a good rugged tenter frame, with, perhaps, some means of collecting the wash water for further use in the mill.

**THE PROCESS ITSELF** has become more or less standardized through the years, but the qualification "more or less" is used advisedly, to indicate a great deal of latitude. About the only point of agreement which would be reached in a conference of mercerizers is that the goods are subjected to caustic soda under tension. It would be impossible to get them to agree to an optimum concentration, ideal temperature, a given speed, or whether gray or boiled goods give the best results.

It is not the intention of the writer to attempt to solve once and for all the many complex factors that enter into the mercerizing of cotton piece goods. Advocates of special types of tenters; tenterless mercerizing; mercerizing of gray goods, wet goods, dry goods, or fabric that has been boiled off; etc.; have built their preferences on practical experience, and for good reasons. Rather, the purpose of this article is to describe a plan of attack which has yielded good results in one plant. It can be applied to any system, or used for a basis of a new one.

A finishing plant having a rather good tenter mercerizing unit was confronted with a number of problems, involving short lots, poor widths, and what seemed to be excessive chemical costs. In addition, there seemed to be an undue amount of shading on continuous-dyed goods. Any one of these conditions, or several, would crop up from time to time; and fixing the blame on any one department was difficult. It was noticed that mercerized goods were mainly involved; and, as a trial balloon, the trouble-shooting was started in the mercerizing department.

A casual examination would have indicated that the department was operating smoothly, with a minimum of damages, good production, and low machine maintenance. Chemical costs were a little high, but this was not immediately attached to the cause.

**A CAREFUL CHECK** on every detail of the mercerizing process revealed daily inconsistencies that were bound to contribute to the troubles mentioned above. About the only routine control practiced was in making up the caustic solution, which stood at 60° Tw. when the batch was completed, and was fed as needed to the pad. Wash-water temperature and volume were distinctly hit or miss, recuperator temperature and flow varied considerably, and amount of residual caustic in the goods after mercerizing was inconsistent—almost always too high.

Confronted with these facts, the technical staff began a series of test runs designed to show the effects of the various inconsistencies, both singly and together. Results were judged from a purely practical standpoint, since the consensus of the staff was that, although scientific evaluation has its rightful place, no converter or ultimate consumer was interested greatly in abstract facts not apparent in the goods. The customer looks for appearance, dye fastness, low shrinkage, and a fair price.

The most important factors of the mercerizing operation were checked one by one. Since the most important and costly single item in mercerizing is caustic soda, the first phase of the investigation was to determine its most efficient application. Accordingly, we made studies to determine:

1. Optimum strength of solution.
2. Optimum length of time of treatment.
3. Optimum temperature of solution.

The literature mentions various strengths from 45 to 65° Tw., at temperatures of 30 to 100° F. Obviously, there is too much latitude in such figures to pick the optimum conditions of operation for any particular mill's

requirements. Since most studies of mercerizing seem to indicate that 60° F. is the best temperature for the production of maximum luster, this temperature was selected for making the series of tests to determine optimum strength of solution and time of treatment.

Runs were made at strengths ranging from 45 to 70° Tw. at intervals of 5° Tw. All other conditions, including bleaching and finishing, were kept as nearly constant as possible. A standard 136 x 60 shirting broadcloth was used, of combed American cotton, boiled before mercerizing.

**STRENGTH OF CAUSTIC.** These tests showed that a caustic liquor of 45° Tw. gave: (1) best luster; (2) best dye value; and (3) best cost factor.

One or two samples run at 60° Tw. had a better luster, but the results were not consistent. Samples run at 70° Tw. were judged poorest for luster. Dye value increased very slightly up to the highest concentration of 70° Tw. At concentrations lower than 45° Tw., a noticeable reduction in luster and a reduced dye affinity were apparent. The general finished appearance and hand were judged visually by the most experienced men available, because more scientific means are seldom if ever used by the trade.

Next, tests were run to determine the effect of time of exposure of the cloth to the liquor prior to washing by the sprays. The effect of immersion time revealed no practical difference between 25 and 75 yd. per min., although the higher speed reduced the immersion time to about one-half that recommended by some scientific investigators. Since production was of prime importance, mercerizing was conducted at the higher speed from that time on.

The question of temperature was more or less governed by the facilities which were available for its control. In our plant, a supply of cold spring water was used in a bank of pipes circulating through a main supply tank which fed the pad. Although not wholly adequate the year round, this system was simple and cost little or nothing to run. Later studies made it evident that an expensive refrigeration system would have added little or nothing to the quality of the work. That is, there was little difference in luster up to 120° F., but a slight harshness of hand resulted that was not desirable at the higher temperature. Samples run at normal room temperatures of from 70 to 90° F., were entirely satisfactory, not noticeably poorer in luster than samples run at as low as 40° F.

An interesting sidelight that developed during these trials concerned the changeover from mixing caustic in large batches to a method whereby the caustic was mixed as used from strong caustic (103° Tw.) and recovered wash waters. When the large mixes were made, temperatures soared to as high as 170° F., but after establishing a cool reservoir and adding make-up liquor continually, it was much easier to maintain safe working temperatures.

The principal object of the changeover, however, was to maintain a constant strength of caustic, within reasonable limits. Tests showed that variations up to 5° Tw. made little difference in dyeing, but beyond that noticeable shading occurred. An air-operated, semi-automatic device was installed, that "read" the Twaddle of the liquor and charted it. In that way any trend toward weaker or stronger liquor was apparent, and correction was applied through an air-operated valve that controlled the flow of strong caustic. Recovered liquor was fed constantly at an even rate of flow, and the operator easily maintained the desired strength within 2 to 3° Tw. through the day.

Carefully controlled mill experiments will reveal optimum strength of caustic and other conditions for mercerizing cotton piece goods to obtain best luster at lowest cost.

**WASHING OUT OF THE GOODS** before leaving the range was the next factor investigated. The loss in chemicals due to poor washing is considerable, but the shrinkage of badly washed goods represents far the more serious loss, since it creates difficulties in finishing to width, Sanforizing to tolerance, and closing out within limits.

Analyses of goods mercerized under controlled conditions of time, temperature, and concentration showed wide variation in residual caustic when washing conditions were haphazard. Although this caustic content was removed by further washing in the bleach house, the time interval was sometimes lengthy, and during the hold-over period shrinkage occurred, plus the formation of oxycellulose in exposed areas. The effect was not overcome by hauling through the washers, indicating a permanent change in the goods.

Results of many tests on fabrics of various constructions and weights pointed the way to a standardized washing method which completely overcame the troubles mentioned above. The equipment available consisted of eight spray pipes, each of 12 to 15 gal. per min. capacity, mounted over the lower two-thirds of the range, with a standard recuperator unit at the end for final washing. All wash water was returned to a sump, and was recirculated through the sprays. Fresh water was introduced at the delivery end of the recuperator, and after the liquors had built up to 8 to 10° Tw., excess was run off to storage for further use in the kiers.

The work done on washing established the following facts:

1. Whatever the system employed for washing, wash waters should be maintained at 170 to 180° F. and not allowed to concentrate above 8 to 10° Tw.

2. The percentage of caustic that may safely be left in goods for a reasonable length of time varies with the construction of the fabric. It is impossible to wash heavy, closely woven goods as thoroughly as light, open fabrics. In most instances, lighter goods

(*Continued on page* 95)

# Callaway Research Institute

## Non-profit organization, separate from mill, secures new quarters and facilities

**Different in many respects from the usual type of textile mill research department is the Callaway Research Institute, recently established by Fuller E. Callaway, Jr. The plan and program of this new and unique organization, as described in the following article, will be of outstanding interest to all research-minded textile men.**

**A NEW ATTACK** on textile problems has been organized by Fuller E. Callaway, Jr., in the form of Callaway Institute, Inc., of which he is president. This institute, which is located in La Grange, Ga., is a non-profit organization entirely divorced from the Callaway Mills and does research of its own accord and for others on contract only.

The fields in which the staff of the Institute are working include mechanical improvements, chemical improvement of fibers, yarns, and fabrics, electrical improvements in existing electrical equipment, new electrical or mechanical devices, and cotton bacteriology.

Perrin N. Collier, as vice-president, acts as executive director of the institute. He brings with him a wide and varied experience from the textile industry and in recent years has become well known for his interest in such work in the textile field.

The staff is highly trained; the idea has been to bring together a staff of unusual ability to work on problems of a technical nature free of distracting influences.

The projects are so planned and conducted that each worker has definite responsibilities which must be accounted for in a specific time. Other trained specialists will be added from time to time as required to secure the solution of important textile and other problems.

It will not always be possible to secure a specialist trained for a specific type of problem. The founders of Callaway Institute recognize this fact and have wisely added an educational program to the other activities of the institute. When the plans are realized in full, this organization will turn out persons well equipped to carry on the textile industry and the research required by the industry. The specialists now on the staff will be instructors and will train others in the various techniques.

At this point it may be mentioned that there are four comfortable and well-appointed classrooms where classes in vocational training are conducted at all hours of the day. Although the major part of this program at present is vocational in nature, it is expected soon to have instruction in chemistry, physics, mathematics, mechanical drawing, special phases of electrical and textile engineering, etc., as the needs arise and as the educational program expands.

The building now used was formerly the Vocational School Building of the Callaway Mills, but it has been entirely re-arranged to suit the new activities. A large portion of the first floor is used by the mechanical and electrical research laboratories and for office space for the engineering staff. Another large section is devoted to the educational work and includes well-equipped classrooms.

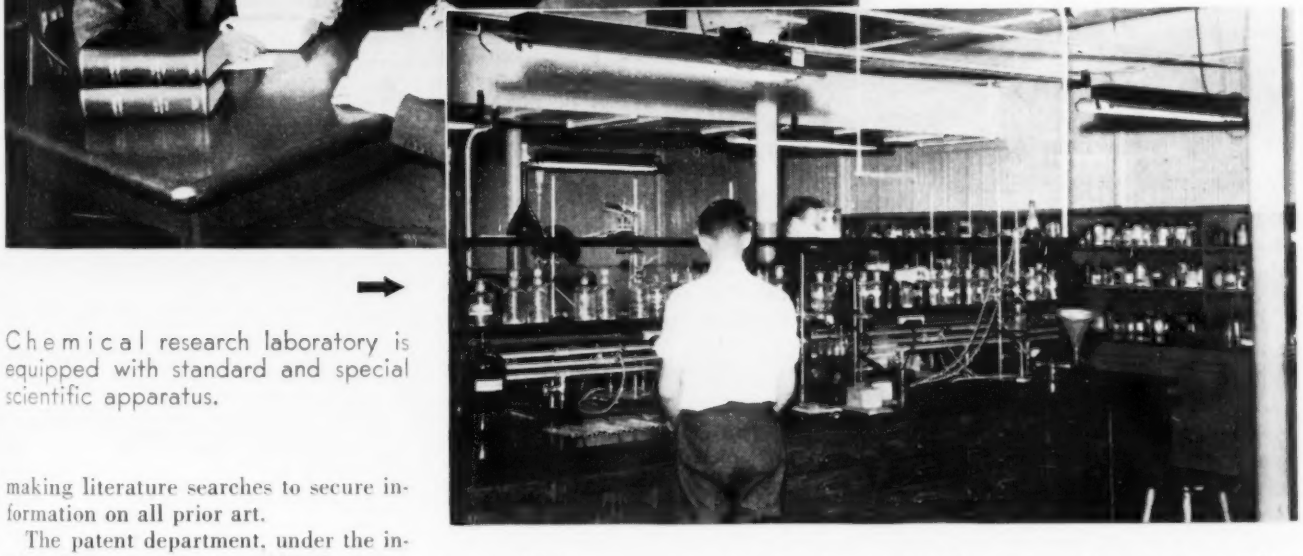
Textile machinery used in every process in a cotton mill is also located on this floor and is used for educational and experimental purposes. The offices of the director and his secretary are also on the first floor. The chemical laboratory and the air-conditioned fiber laboratory are on the lower floor, along with the necessary office space for those who work there. Also on this same floor are the library and office of the patent agent.

**THE LIBRARY** is the heart of the new institute. Miss Katherine Glass, graduate of Emory University and previously librarian at the Georgia State College for Women, has been secured to handle this work. The library was started over two years ago in conjunction with Callaway Mills research department and has been growing steadily since that time. Many of the latest scientific books, periodicals, and journals have been secured, along with sets of the older volumes of essential journals. Besides caring for the routine duties of a library, Miss Glass assists the staff in

Engineering research offices of the Callaway Institute adjoining the mechanical research laboratory. A modern and efficient layout has been provided.

Exterior view of the new quarters of Callaway Institute, Inc., La Grange, Georgia. This building was formerly the Vocational School of Callaway Mills, and has been remodeled to meet the research requirements of the new Institute.

The research library contains the latest scientific books and periodicals and is supervised by an experienced librarian.



Chemical research laboratory is equipped with standard and special scientific apparatus.

making literature searches to secure information on all prior art.

The patent department, under the institute's patent agent, Alfred Auge, works with the staff in gathering data on patents issued on projects similar to the ones under investigation. In addition, the patent agent makes searches in the U. S. Patent Offices and handles the legal phases of the institute's patent applications. This department was also formerly a part of the Callaway Mills research department, and the scope of its work will be considerably broadened in the new arrangement.

**CHEMICAL RESEARCH** is being conducted by Dr. B. Reid Clanton, Dr. Fred S. Perkerson, and S. Jack Davis. Dr. Perkerson, incidentally, has only recently returned from the University of North Carolina where he secured his degree through a Callaway Mills Fellowship. In addition to these men are laboratory assistants. This department, too, was developed in the Callaway Mills research department, and its present activities represent an expansion under the new plan.

Mechanical research on looms and loom equipment is being handled by Sam P. Parker, who is a practical loom specialist with a considerable background of mill experience. His work will include the design of new equipment, and the improvement in the efficiency of machine operation. Considerable progress has already been made in this department in developing new equipment.

Other mechanical and electrical research work is in charge of Clarence M. Asbill, Jr., a graduate in electrical engineering, who formerly was with the Southern Regional Research Laboratory at New Orleans and earlier with Westinghouse Electric & Mfg. Co. Mr. Asbill will develop new and special electrical and mechanical equipment, and will revise old equipment. The electrical and mechanical work is allied with the work of the loom specialist.

The reasearch machine shop is equipped to handle instrument, tool, and machine development work. Additional personnel is being sought to augment the present staff of research machinists.

**COTTON BACTERIOLOGY** is a promising field of investigation, according to Mr. Collier, and the present plan includes the addition of a qualified bacteriologist to the research staff. Too little is known of the action of bacteria on the cotton fiber; judging from the progress made in the bacteriology of other fields, there appears to be much that can be done. There has been, for example, considerable interest in mildewproofing of Government fabrics, and research in this field will be a likely project.

The institute, it is seen, affords a well-rounded program of education and research which are of vital importance.

# MANUAL OF MILITARY FABRICS

## Part III—8.2-oz. Cotton Twill, Type I

### Manufacturing and processing details for uniform fabric covered by Army Specification No. 6-201B

**FOR USE IN ARMY UNIFORMS,** the Philadelphia Quartermaster Depot requires large quantities of 8.2-oz. cotton twill in five types. These fabrics are covered in Army Specification No. 6-201B, issued Dec. 9, 1942, which supersedes Army Specification Nos. 6-201A, 6S-201A, and 6-237. The new Army specification is similar to Tentative Specification P.Q.D. 33-A. Below is given a brief abstract of that part of Specification No. 6-201B, which relates to Type I twill, followed by detailed information—not given in the specification—on the manufacture and processing of this fabric.

**To meet the need by textile mills for complete data on gray constructions, yarn organizations, weaving, and finishing of fabrics required in large quantities for military use, TEXTILE WORLD, with the approval of officers of the Quartermaster Corps, began publication in the February issue of a Manual of Military Fabrics. The mill organizations and other manufacturing and processing data were furnished through the cooperation of textile mills which are producing this fabric under Government contract. It is recognized that other plants having different types of equipment will have to make some modifications in the organizations, formulas, and procedures presented. Accordingly, these data should be regarded not as "standards" which must be followed, but as guides to the more efficient production of this fabric. Parts previously published are as follows: Part I, 5-oz. Poplin Type II, P.Q.D. No. 1, February; Part II, 6-oz. Cotton Twill, Army Specification 6-311, March.**

★ ★ ★ ★ ★

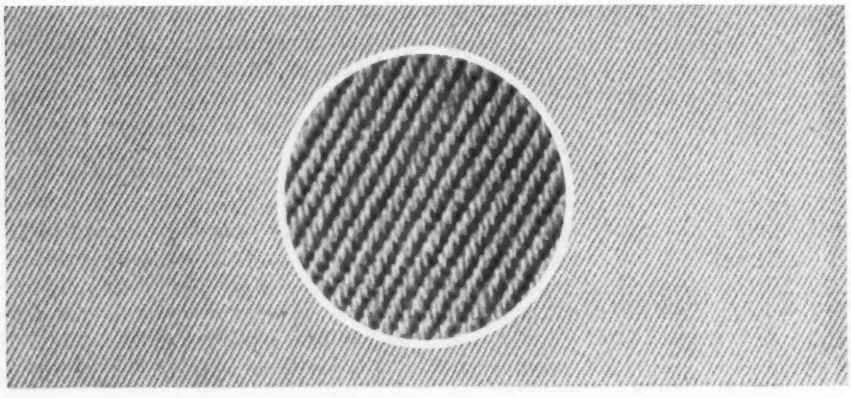
### Abstract of Specification

**Cotton:** The cotton shall be of suitable length of staple and grade to meet the requirements of this specification. When irrigation-grown cotton is used, it shall not be blended with other cottons at any stage in the manufacture of this fabric.

**Yarns:** The cotton yarn shall be thoroughly cleaned, evenly drawn and spun; warp yarn shall be 2-ply; filling yarn shall be 2-ply.

**Color:** Color shall be of khaki, olive drab, or any other color as specified in invitation for bids of the same shade as shown by the standard sample. Cloth shall be evenly dyed with vat colors and shall show a good fastness to the following tests: *Fastness to Weather*—Samples to be exposed for 30 days. *Fastness to Laundering*—Test to be conducted by washing procedure as outlined in paragraphs 1 and 2 of Section XIV, Federal Specification CCC-T-191a. *Fastness to Bleaching*—Tests to be made as outlined in Specification No. 6-201B. *Physical Requirements*—Width shall be not less than 28 or more than 57 in.; weight (maximum per sq. yd.) 8.2 oz.; ends and picks minimum 116 x 56; breaking strength minimum, by 1x1x3 grab method, shall be 180 lb. warp and 130 lb. filling. Weave shall be four harness twill to the right, 3 up, 1 down. *Finish*—The cloth shall be closely singed, bleached, fully mercerized, and shall contain no sizing. Fabric shall not shrink more than 1% in either the direction of warp or filling when subjected to tests for shrinkage in laundering, Section XIV, Federal Specification CCC-T-191a. When specified in the invitation for bids, the cloth shall be given a water-repellent treatment to provide a spray rating of 90 initially; after 3 launderings, 80; after 3 dry-cleanings, 80.

The methods of testing described in Federal Specification CCC-T-191a, wherever applicable, shall be followed.



8.2 oz. cotton twill for uniforms covered by Army Specification No. 6-201B.

### Manufacturing Details

Yarn manufacture—Yarns are made on standard combed yarn equipment without special settings in feeds and speeds of the picker through to the finished yarn. If shorter stock has been run, roll settings must be changed to suit staple length. Clean stock is necessary.

Opening, blending, picking, carding, combing, and drawing organizations (designated No. 3 on next page) can be the same for warp and filling. Roving organization No. 4 for 4.40 h.r. can be used for warp and filling. Spinning organization No. 5 for 36s yarn is employed for the warp. Spinning organization for No. 6 for 24s yarn is employed for the filling.

Fabric manufacture—Set loom to get a good face on the twill and tension to take picks well. Looms suitable for weaving this fabric include Draper XK Model equipped with Midget feeler, Stafford thread cutter, and Nutting bar take-up, and is run approximately 160 p.p.m.; Draper Models E, X, X-2, K, and XD; attachments recommended are Nutting bar take-up; Stafford thread cutter; and Midget feeler; loom speeds require adjustment to the fabric, especially if high-production fabric was formerly run on them; Crompton & Knowles Models C-3, C-4, C-5, and C-6; no changes are recommended in the equipment of these looms; speeds can be adjusted to secure maximum production of first-quality cloth.

### Finishing Details

Scouring and Mercerizing

Follow procedure outlined in Part II of this Manual (TEXTILE WORLD, March, 1943).

Dyeing

For producing olive drab shade usually required, use Vat Dyeing Formula No. 3, 4, or 5 and procedure outlined in Part II of this Manual.

If water-repellent finish is specified in invitation to bid, follow procedure outlined in Part I of this Manual.

Preshrink on Sanforizing machine or other preshrinking equipment to give residual finish of not more than 1% in either warp or filling. Finished width, exclusive of selvage, to be not less than 28 in. nor more than 57 in.

Inspecting and Folding

1. Inspect
2. Fold in continuous pieces of not less than 50 yd. using 1-yd. folds.
3. Ticket, pack, and mark according to instruction in Army Specification No. 6-201B.

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**Opening and Blending Organization No. 3**

Grade—Middling
Staple—1 3/16 in.
Mix—Load from 16 bales
Processes—Bale breaker, hopper, Centrif-Air machine, hopper, Buckley beater, bins

**Picking Organization No. 3**
**12.8—oz. lap**

One process
Type beaters:
Porcupine-cyl. back
3-blade center
3-blade front
Beater speeds:
480 r.p.m. back
940 r.p.m. center
890 r.p.m. front

**Carding Organization No. 3**
**50-gr. sliver**

420 r.p.m. lickerin
160 r.p.m. cylinder
8 r.p.m. doffer
3.5 in. per min. flats
50 in. dia. cylinder
26 in. dia. doffer
120 cylinder wire
130 doffer wire
130 flat wire
104.82 draft (waste deducted)
7 lb. per hr. production
6.41% waste
Main settings:
0.010 in. feedplate to lickerin
0.007 in. lickerin to cyl.
0.007 in. doffer to cyl.
0.009 in. flats to cyl. Points—1-2-3 (front)
0.009 in. flats to cyl. Points—4-5 (back)
0.034 in. front plate
0.034 in. back plate (top)
0.017 in. back plate (bottom)

**Combing Organization No. 3**
**60-gr. sliver**

Sliver lapper
22 ends up
630 gr. lap
1.75 draft
Ribbon lapper
6 doublings
600 gr. lap
6.3 draft
Comber
104 nips per min.
12% waste
52.8 draft (waste deducted)
15.4 lb. per hr.

**Drawing Organization No. 3**
**60-gr. sliver**

1st drawing—60 gr. sliver
322 r.p.m. F. R.
Type rolls:
Top: leather
Bottom: metallic
2nd drawing—60 gr. sliver
310 r.p.m. F. R.
1¼ in. dia. F. R.
6 draft
Type rolls:
Top: leather
Bottom: metallic

**Roving Organization No. 4**
**4.40 h.r.**

Slubbers
31.7 draft
135 F. R. speed
1⅛ in. dia. F. R.
2.22 twist

**Spinning Organization No. 5**
**36s yarn**

4.40 roving-double
16.4 draft
125 F. R. speed
1 in. dia. F. R.
3.60 twist multiple
Z direction of twist
10 gr. travelers (weight of 10)
2 in. ring size

**Winding and Twisting Organization No. 2**
**36/2 warp yarn**

Winding:
Cone type pkg.
2½ lb. per pkg.
Doubler:
2 ends up
Cheese type pkg.
Twisting
36 yarn No.
2 ply
S direction of twist
16 twist per in.
3.5 in. ring (vertical)
No. 17½ Traveler-bronze
50 F. R. speed
2 in. dia. F. R.
Winding
Cone type pkg.
2½ lb. per pkg.

**Spinning Organization No. 6**
**24s filling yarn**

4.4 roving-double
10.9 draft
140 F. R. speed
3.60 twist multiple
Z direction of twist
16 gr. traveler (weight of 10)
2¾ in. ring size

**Winding and Twisting Organization No. 3**
**24/2 filling yarn**

Winding
Tube type pkg.
2½ lb. pkg.
Twisting
24 yarn no.
2 ply
S direction of twist
16 twist per in.
2 in. ring
No. 16 traveler
85 F. R. speed
1⅝ dia. F. R.
Winding
Cone type pkg.
2½ lb. per pkg.

**Quilling Organization No. 1**

Quilling
Quill type pkg.
7 in. quill
0.88 oz. yarn per quill
7 yd. bunch
1¾ in. taper

**Warping Organization No. 3**

10,000 yd. length set
8 beams to set
570 ends per beam
Cone type creel, 600-ends capacity

**Slashing Organization No. 3**

25 yd. per minute slasher
4½% size added
Size Formula No. 3
35 lb. starch (corn)
3 lb. softener
1½ lb. binder
100 gal. finished

**Drawing-in and Weaving Organization No. 3**
**8.2-oz. per sq. yd. twill 39 in. finished width**

Drawing-in
No. harness 4
1134 ends per harness
Duplex type harness
12 in. length heddle
Duplex type heddle
(2 per end) Mechanical type 0.008 in. thick drop wires

Weaving
Gray: Oz. per linear yd. 9.7; yd. lb. 1.65; width 42½ in.
Warp ends in. 107; picks in. 57
Warp yarn 36/2; fill. Yarn 24/2
Percent warp 59.18; percent filling 40.82
Selv. threads 36/2
Ends selv. 24; Selv. draw tape
Reed D/in. 34.75; Ends/dent 3
Reed spread 43.75 in. No. harness 4
Ends per eye 1; Weave 3/1 twill to right
Pattern or straight draw—straight
Take-up warp 15%; take-up fill. 3.04%

**Cloth Room Organization No. 3**

No. Inspections—One
Type Inspections—In fold
No. sides Burled—One
No. Brushings—None
No. Shearings—One
No. Runs Napper—None
Type Grading—In fold on table
Folding—Ship in fold
Length of fold—1 yd.
Bales or Rolls—Bales
Fin. Yr. per cut—90
Total Yd. per pkg.—1000 approx.

# Flameproofing Military Fabrics

## Development of processes which afford protection against fire, water, mildew

By WINN W. CHASE
*Technical Editor, Textile World*

**FLAMEPROOFED COTTON FABRICS** are being employed for a number of important military purposes. In most instances, the fabrics are intended for out-door use. Accordingly, they must withstand rain and weathering without losing their fire resistance. The flameproofing treatment must, therefore, be as permanent as possible in its effect.

Important among these fabrics is cotton duck conforming to the requirement given in Federal Specification CCC-D-746. According to this specification, the duck must be treated with a suitable compound which will make it fire-resistant, water-resistant, and mildew-resistant, and will materially increase the ability of the fabric to resist deterioration when used out of doors. The treatment must penetrate the duck and not merely coat it and must leave no material on the fabric which will be injurious to the skin.

The specification states further that the treated duck must be approximately as flexible as the untreated fabric, and must show no marked increase in stiffness after exposure to an accelerated weathering test, no apparent decrease in flexibility after exposure to a temperature of 158° F. for 72 hr. and must not crease or crack when subjected to a temperature of minus 20° to minus 35° F. for 6 hr. Further, the treated duck after exposure to an accelerated weathering test must have a breaking strength of not less than 90% of that required by Federal Specification CCC-D-771 for untreated duck.

Until comparatively recent years no really satisfactory permanent flameproofing process had been developed. For most purposes, water-soluble compounds were employed, such as ammonium phosphate, ammonium chloride, boric acid, and borax. More durable results were obtained by the Perkins method, which consists essentially of treating the fabric with sodium stannate, drying, treating with ammonium sulphate, and again drying. In this way water-soluble stannic oxide is precipitated on the yarns and fibers. However, the Perkins process does not produce a truly permanent flameproofing effect and has other disadvantages which will be mentioned below.

The quest for a permanent flameproofing treatment for heavy cotton fabrics for outdoor use began in earnest about ten or twelve years ago. Much of the work was carried out by Martin Leatherman, of the U. S. Department of Agriculture, and the results of his investigations are reflected in numerous patents covering the flameproofing and fireproofing of textiles. Simultaneously several other investigators were working on the problem, some of them along lines quite similar to those being followed by Leatherman. As a result of all these efforts, methods have been evolved which permit production of flameproofed fabrics which withstand hard military use.

Development of the present-day processes began with attempts to improve the Perkins method, but later involved a complete departure from it. It was found that when water-insoluble stannic oxide is precipitated on the fabric, it prevents propagation of flame, but does not prevent vigorous flameless combustion or afterglow. The flameproofing effect is due to the fact that the stannic oxide, under the influence of heat, sets up a catalytic dehydration of the cellulose; that is, it splits the cellulose into carbon and water, thus preventing formation of combustible gases. However, stanic oxide is a catalyst for carbon combustion; and, consequently, fabrics flameproofed with it glow vigorously even though they do not flame. Furthermore, fabrics flameproofed with stannic oxide deteriorate when exposed to sunlight; and, as mentioned above, the flameproofing effect is not permanent because the stannic oxide gradually leaches out when the fabric is exposed to rain.

The first steps taken toward an improved flame proof finish were to employ supplementary materials which would fix or anchor the stannic oxide to the fabric and other supplementary materials which would prevent deterioration of the fabric when exposed to sunlight. It was found that highly chlorinated organic compounds—such as vinyl chloride resins, chlorinated rubber, and chlorinated paraffin wax—prevent afterglow. The glowproofing effect so produced is due to the evolution of hydrogen chloride at high temperatures. As these chlorinated organic compounds are water-insoluble, they render the fabric more or less water-repellent as well as flameproof. However, they too have a destructive effect on the fabric when it is exposed to sunlight. Fortunately, it was discovered that the deteriorating effect of both the stannic oxide and the highly chlorinated organic compounds can be greatly lessened by addition of colored metallic oxides to the flameproofing mixture.

The next discovery was that it is unnecessary to precipitate stannic oxide on the fabric and then apply the chlorinated organic compound and the coloring material, but that all the ingredients can be applied at one time with the aid of volatile organic solvent. If desired, a mildewproofing agent can be incorporated in the mixture. Still later it was found that stannic oxide is not needed, as the colored metallic oxides and the highly chlorinated organic compounds provide a satisfactory flameproofing effect.

**TYPICAL OF THE FORMULAS** now employed for treating heavy cotton fabrics for Army use is the following: 16% chlorinated paraffin wax, 12% synthetic resin, 2% plasticizer, 15% insoluble metallic oxide pigments, 15% olive drab composite, and 40% volatile organic solvent. The chlorinated paraffin wax, resin, plasticizer, oxide pigments, and olive drab composite are ground together; the solvent is added; and the whole mixture is stirred thoroughly. The fabric is impregnated with the flameproofing mixture, run through squeeze rolls, and dried. To obtain optimum fire resistance, a sufficient quantity of the mixture should be applied to give an increase of 45 to 50% in the weight of the fabric. The pick-up of the mixture depends on the percentage of solvent, squeeze roll pressure, and other variables—all of which are carefully controlled.

Fabrics treated in this way meet Government requirements for a fire-resistant, water-resistant and mildew-resistant finish on cotton fabrics as given in Federal Spec. CCC-D-746.

# Blends for 32-oz. Army Overcoating

## We maintain 80% loom efficiency when using 50% reprocessed or reused wool

By WILLIS G. HOLMAN

**SEVERAL OF MY MILL FRIENDS** were present at the Philadelphia Quartermaster Depot when I turned in a bid against a recent invitation for 32-oz. OD overcoating. Over the dinner table, later, the chief topic of conversation centered around a discussion of how our mills were going to make the overcoating under the new blend specifications recently issued in certain invitations to bid. These invitations call for 10% of 58s grade wool, 40% wool not lower than 44s grade, and 50% reprocessed or reused wool.

It was interesting to hear the different angles that these successful mill men had on the subject. One mill operator stated he felt that he would be able to produce the cloth satisfactorily as far as quality was concerned, but his production would fall off tremendously, principally because loom efficiency would drop because he would no longer be able to spin yarns with as high a breaking strength. He had formerly used a blend of 65% wool with only 35% reprocessed or reused wool, which represented the Quartermaster's specifications prior to change.

Another manufacturer stated that he did not know what effect the new blending specifications would have on his product. He hadn't had the opportunity to run tests, but hoped he would be able to improve his blend in some way that would not result in a loss of productive efficiency.

It was amazing to hear these reports, because these two mill men representing sizable organizations that were placing a bid on a cloth and actually pricing the cloth without having run a test and without having adequate information on which to determine their costs, productive efficiencies, etc.

Fortunately, my mill had run tests with three different blends and had definitely decided which gives us the most satisfactory results. Our mill demands that no cloth be fabricated that will not permit us consistently to maintain an 80% loom efficiency. The mill had been operating with an 80% loom efficiency, using the old blend, and the superintendent was a little skeptical with the changed specifications as to how to attain the same breaking strength and take out 15% of the wool.

*Army Signal Corps Photo*

Overcoating for sub-zero weather.

At first thought, it seemed ridiculous to think that such would be possible. However, after giving the matter considerable thought and study and after running some experimental lots, a blend was developed which produced a yarn equal to our former blend. Strange as it may seem, it actually produces a yarn that breaks a little stronger and has more elasticity. It can be spun with the same inches of stretch, insuring the same roving weight.

**THE BLEND DEVELOPED** is given in Table I. Waste used in the blend is our own product composed of various types, as listed in Table I.

Sometimes it is difficult to procure enough 32-oz. OD clips to be reworked into waste to furnish the required amount. When this condition exists, our mill uses 15% waste, 15% of old medium fancy knits, well carbonized and neutralized, and 20% of old coarse merinos that have been carbonized and neutralized.

Experimentation with both blends determined that each produces yarns that will break in excess of 100 lb. for 7⅔ cut yarn (2.56 Typp). Further, these yarns can be spun with 25 in. of stretch, thus insuring a yarn that is lofty and elastic.

Our mill executives are convinced that with a blend of the type as shown in the table, and one that is definitely cheaper than the old blend using 65% wool, the same manufacturing efficiency can be attained as formerly.

Of course, if preferred, a sacrifice in productive machine efficiency could be made with a saving on raw material costs accruing by using more short staple wool; e.g. packing-house pulled wools, short clothing wools, etc., and even the higher priced knits could be eliminated. But, from a standpoint of machine efficiency consistent with economical cost of manufacturing, a blend which will give a loom efficiency of 80%—and 32-oz. overcoating is a tight cloth—is to be preferred.

**TABLE I—Blend for 32-oz. Overcoating**

| PERCENT | CLASSIFICATION | GRADE |
|---|---|---|
| 10 | Territory | 1/2 Blood |
| 25 | Territory, combing | 1/4 Blood |
| 15 | Packing house, pulled | 48/50s |
| 35 | 32-oz. clips, new | pickered |
| 15 | Clean, reworked waste (own product) | scoured card waste, picked head ends, picked hard ends, hard sorted mill sweeps, spinning-room hard ends and packing waste, and small percentage of soft spool waste. |

# Longer Life for Belts

## Suggestions on belt maintenance based on data supplied by maintenance men

By FRED MERISH

**A SURVEY** made recently by the writer in northern textile mills indicates that belting maintenance is not all it should be—particularly under war conditions. In some mills maintenance men have been lax in making belting inspections at specified intervals, waiting until a belt goes bad or develops defects before giving it attention. In other plants, inspection is carried out in a cursory manner or at irregular intervals. Only 20% of the mills surveyed keep inspection records which provide case histories of motors, drives, and machines. On the other hand, some companies have worked out schedules for periodic inspection and preventive maintenance of belts, and the maintenance men are well versed in care and upkeep of belts. Immediately below are suggestions for better belting maintenance compiled from notes taken during that survey and from other sources.

**1.** If belt tends to accumulate dust, lint, or oil, clean the belt once a week with waste wet with gasoline; then dress the belt. Try to eliminate the oil; oil is bad for all belts, regardless of type. If unable to eliminate, buy special belt dressing that is resistant to oil.

**2.** Dress all leather belts once every three months for normal conditions; once a month or oftener if belt is inclined to get dirty or oily. The belt dressing helps keep belt clean and tends to work the dirt off sides of belt. Use good belt dressing in liquid or semi-liquid form.

**3.** Observe minimum pulley diameters for each thickness of belt recommended by manufacturer. If belt is run on too small a pulley, the double belts may separate between plies, single belts may open at laps, the belt wears on interior of belt due to bending, and belt life is shortened.

**4.** Ordinarily, you can't get a belt too tight. But if you use clamps or rods for putting on belts, there is some danger. If a belt is run at unnecessarily high tension, the outside surface tends to crack. This also pulls the shafting out of line, burns out bearings and lowers power transmission.

**5.** For unusual conditions of steam, hot water, oil, dilute acids or alkalis, use only a special tannage belt designed for the particular service.

**6.** Usually the shafting or machinery is out of line if a belt runs crooked. Misalignment is frequently caused by the machine being out of level.

**7.** Don't use a belt as wide as the face of the pulley. A clearance of ½ in. (more on wide belts) will transmit more power and insure longer life. Belts of same width as pulleys have ⅜ in. on each side of belt that do not contact pulley and do no work.

**8.** Run a belt with the grain or smooth side to the pulley. This insures better transmission and longer service smooth side transmits 40% more power.

**9.** Most trouble with leather belts comes from having a belt not wide enough or thick enough to handle the peak load. Check drives giving any trouble with American Leather Belting Association official horsepower table and be sure you have enough belt. Putting on a little more belt than is necessary will increase life of belt by 50%. To put on less belt than is necessary, causes belt slippage under load, loss of production of driven machine, and short life from the belt.

**10.** Be sure you belt all motors to handle the full starting or pull-out torque of the motor. For instance, a 5-hp. motor may have a torque of 250%, in which case you should belt it for a 12½-hp. job—not 5 hp. Watch this, and two-thirds of all trouble with leather belting will disappear.

**11.** Use high-grade belt cement. Make repairs promptly. Examine belts at specific intervals.

**12.** Buy first-quality belts. The best maintenance will not make up for poor quality belting.

**13.** Check with a speed indicator to detect slippage whenever you have a speed drop in driven machine or suspect slippage.

**14.** All short-center leather belts should have the motors mounted on automatic belt-tightening motor bases. This eliminates all trouble from having belt too tight, doubles life of belt, and runs driven machine continuously to maximum capacities as it maintains uniform driven machine speeds, regardless of belt stretch or loads.

**15.** Frequently, maintenance men can find some simple remedy for a condition which is shortening belt life or interfering with proper belt performance. Whenever a leather belt is not performing 100%, look for the cause. Look for misalignment of pulley; check loads to see if you have right size of belt; see that belt is not too thick for the small pulley diameter; etc.

**1.** Trench coat made of wind-resistant cloth has a buttoned-in knitted lining that may be worn as a bathrobe when removed. **2.** Seersucker, wrap-a-round-style uniform is used for overseas duty. A tailored jacket has been provided to convert the uniforms into a suit for off-duty wear. **3.** Parkas for nurses are olive drab on one side and white on the other. Jackets and trousers worn beneath the parka are of pile fabrics for protection from cold.

# Olive Drab for Army Nurses Corps

## New fabrics and uniforms for nurses and WAACS simplify production problems

**SIMPLIFICATION AND COORDINATION OF FABRICS** used by the Army Nurse Corps and the WAAC in order to expedite production of fabrics by the industry and to simplify distribution problems has resulted in putting the nurses into olive drab.

The basic fabric for the nurse's street uniform is the 14-oz. wool barathea, the same fabric authorized in AR 600-35 for wear by officers and procured under Specification PQD No. 121A. The color is the standard olive drab No. 51 in the dark shade now specified as the standard uniform color for officers of the Army. The identical fabric in the same color will be used for WAAC officers' uniforms.

To simplify distribution problems, identical jacket and skirt will be worn by both WAAC officers and Army Nurses. The design of the WAAC officers' jacket is being modified slightly to conform to the design of the nurses' jacket. For wear with this uniform, the nurses will have a trench coat or field overcoat made of two plys of Type II wind - resistant, water - repellent combed poplin, as covered in Specification PQD 1A. This is provided with a knitted 20-oz. removable wool lining which buttons in and may be worn separately as a bathrobe, securely buttoned up at the throat. This coat will serve as an overcoat, as a top coat, and in addition, under most conditions, as a raincoat.

Nurses will wear a cotton waist made of the same combed poplin fabric as is specified for the white hospital uniform. As a substitute fabric, 136 x 60, combed yarn broadcloth may be supplied. This waist is identical both in fabric and construction with the WAAC waist and is to be Khaki No. 1 color, same as officers' shirts. The necktie to be worn with this waist is of cotton with mohair filling, Khaki shade No. 5. A cape of the same wool barathea used for street uniforms is also provided. This follows the traditional nurses' cape, but is self lined instead of contrasting material.

For wear in field hospitals overseas, nurses will be supplied with a brown and white striped seersucker uniform, 112 x 80, 4-oz., fine carded-yarn fabric. To simplify industry production and procurement of fabrics by the QMC, the WAAC requirement for seersucker for exercise suits has been changed to the same material. This striped seersucker will replace the plain piece-dyed blue seersucker fabric which has been procured in the past.

For the advanced zone, Theaters of Operations, where nurses are operating in field hospitals and battle aid stations, a shirt and trouser outfit similar to the dress worn by all the Army is provided. This suit is to be worn with field shoes, canvas leggings, helmet, and helmet liner.

Arctic clothing similar in finish and design to that provided for other units of the Army is also provided. This consists of a convertible parka, white on one side, olive drab on the other side, with fur trimmed parka hood. The fur is necessary for frost conditions since frost can easily be brushed off instead of forming a solid cake of ice as would be the case on a fabric. In addition there are ski pants of a water-repellant type fabric. Beneath these outer shells the nurses will wear liner jacket and trousers made from pile fabrics. At present the pile fabrics are being procured in 50% alpaca and 50% mohair blended.

# Defects in Combination Fabrics

## Yarn failures responsible for crepe injury traced to rayon throwing operations

**Prevention of rayon fabric imperfections frequently caused during weaving, as were discussed in the March issue of *Textile World*. In this article the author considers a number of fabric defects that can be traced back to the throwing operation, together with some which may occur either in throwing or weaving.**

By ARTHUR C. WAYMAN

**THROWING** is responsible for various defects found in woven fabrics. Many of these faults may not appear until after the fabric has been dyed. Others may be recognized as they are woven into the cloth.

**Acetate loops,** Fig. 1, are defects caused in throwing and are usually traced to uneven or irregular tension during the doubling operation. Either the crepe end is tensioned excessively or the acetate end is too loose. A reasonable allowance for the proper ratio of take-up between crepe and acetate yarn is 0.25% for every turn in the ply yarn, using as a basis 3% contraction for 6 turns. Ten turns, therefore, would call for 4% contraction. In other words, on 10 turns of first or final ply, the take-up of the acetate yarn should be 4% less than the crepe yarn take-up.

Acetate loops are also responsible for warp strip-backs, as well as filling strip-backs. The reed and shuttle tensions, if excessive, can easily cause these acetate yarn loops to be clipped.

**Slack twist,** illustrated in Fig. 2, is classified as a throwing defect. This defect usually starts at a knot and can run from a few inches up to many yards. The cause of slack twist can be traced to second time spinning or redrawing.

Whenever a breakdown occurs in spinning the end should be lapped around the iron head bobbin and never should be tied. Sometimes warps are prepared direct from these iron heads. Whenever an end runs out the operator must pull off enough thread so that all slack twist is removed, if this defect is to be eliminated. In redrawing the same principle must be followed.

Slack twist in combination goods, either warp or filling wise, is a very serious defect. Fortunately, regular testing of each spindle with the stroboscope will reveal the presence of any improperly running bobbins. A further safety check to keep such ends out of woven goods is to make boil-off and dye-tests at the beginning of every third cut or at more frequent intervals when a lot of yarn is particularly suspicious. This procedure is necessary since slack twist might also be caused by improperly working spindles. A knot is not always present to call attention to the possibility of slack twist existing in a yarn.

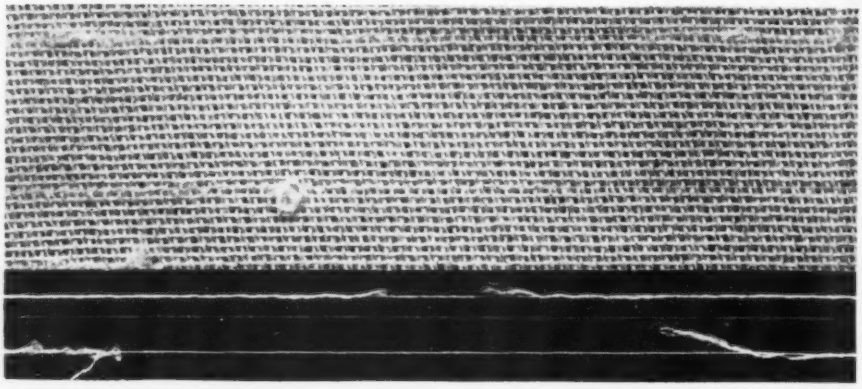

Fig. 1. Damaged picks frequently appear in fabrics as looped yarns. Several of the yarns isolated from the fabric show evidence of filament damage.

Fig. 2. Slack twist is evident in the yarn at the knot. This defect may run from several inches to several feet.

**Loose picks,** Fig. 3, are traced either to quilling or to weaving. Poorly formed yarn tapers on the filling package, either concave or convex in nature, will cause two or more winds of filling to slide off the quill. Excessive amounts of yarn will then be drawn through the filling-tension eye and under uneven tension, resulting in uneven lengths of filling being placed in the shed. This excessive amount of yarn is then beaten into the fabric. Another cause of loose picks is too high a wind. In such cases, if possible, this wind should be reduced, say from 7 to 5.

Lively filling is also responsible for this defect. The yarn should be steamed for 10 to 15 min. at 75% relative humidity. A longer steaming period is to be preferred to a shorter period at higher temperatures. The yarn must be absolutely dead when delivered to the loom.

A well-furred shuttle is of great importance in holding the yarn in the shuttle. Moderate pick must be used and

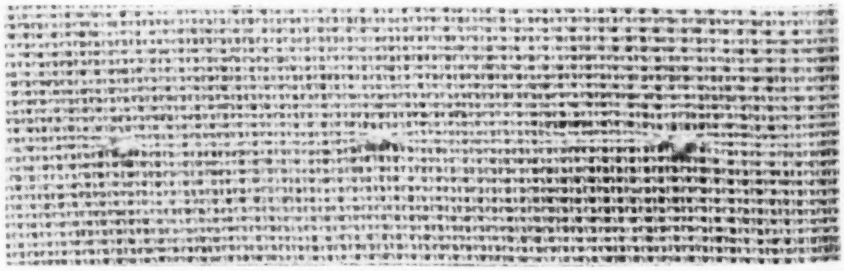

Fig. 3. Loose picks appear in a fabric in the form of frequent loops which are caused by excess filling yarn being deposited in the shed.

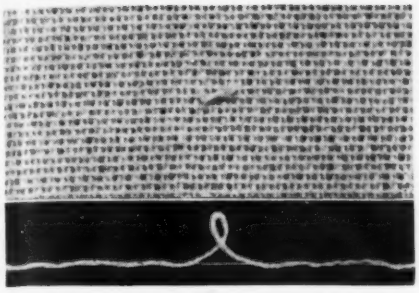

Fig. 4. Acetate loops appear in a fabric as a single loop at infrequent intervals. A close-up of such a loop shows that only one of the yarns is looped, in this case, the acetate.

the shuttles must not rebound. Also, all shuttles must be of equal size and weight.

**Damaged picks:**—Yarn is sometimes damaged in the preparatory departments or during weaving.

In throwing it is important that during doubling the tension applied to both the acetate and crepe ends be properly balanced. Excessive tension on the acetate may easily overstretch the yarn to such an extent that the least additional tension can easily rupture the filaments, as shown in Fig. 4, especially in the lower illustrations showing the ruptured strands.

In second time spinning a heavy flyer is also likely to damage the acetate. Full bobbins, especially those with iron heads, require that a broken yarn end be placed on the idler bracket promptly as long running of the yarn about the cork roll may damage the yarn. When redrawing combination yarn through cleaners, the cleaner blades must not be set too close.

In quilling be sure the traverse wheel has proper clearance from the quill during the forming of the bunch. This wheel must not contain nicks or scratches.

Contact of a finished quill with the quill board or with adjoining quills must be avoided. Such contact may easily bruise the yarn. This practice also applies to bobbins because careless handling may cause the head of one spool to bump against the yarn on another and damage the filaments.

Check the loom for projections which cause cut picks, especially the boxes. The binders should be covered with felt and it must be renewed at regular intervals. Felt, because of the action of the shuttle, may cause sharp edges to develop.

The boxes must be aligned properly on the lay. One of the methods of minimizing damage to filling is to cover the boxes, both top and bottom, with cloth. This will prevent yarn from being pinched between the shuttle and box.

A damaged reed can also injure the filling during beating up. Sometimes such injuries show only after dyeing when the piece is stretched. Weak spots will not stand this abuse and will rupture.

Weaving combination goods requires that the weaver's load be given careful consideration. A weaver may run satisfactorily 36 or 40 automatic looms on flat goods with good efficiency. But, unless the yarn—both the warp and the filling—is the best possible, the same weaver may find it difficult to operate even half his original number of looms. This is because of the low pickwheel used for such types of fabrics; hence the goods are woven faster. If an acetate end breaks on a loom running at 142 picks per min. and weaver does not observe the loom for 5 min., a 34-tooth pickwheel will have been responsible for weaving almost 24 in. of damaged goods. For a weaver to cover 40 looms in 5 min. requires an average period of 7½ sec. per loom, therefore one can readily see how important first-class workmanship is in all preceding departments. Even if a weaver's load is reduced by one-half, he will have only 15 sec. per loom. Good planning will, therefore, provide that a certain number of looms be covered while some others are running, but all looms weaving high-quality yarns.

# Mercerizing—A New Approach

(*Continued from page* 85)

are harmed more by excess residual caustic.

It would not be practical to list absolute limits of caustic content, due to the wide variety of goods handled, and the many types of equipment in use; however, as a guide the following will indicate safe limits in three classifications:

A. 5.00 to 6.00 yd. goods and lighter, such as novelties, lenos, light madras, etc.—0.1% to 0.3% NaOH.

B. 4.00 to 5.00 yd. goods of medium construction, such as broadcloths, shirtings, etc.—0.25% to 0.50% NaOH.

C. 3.00 to 4.00 yd. goods, such as oxfords, fancies, drapes, etc.—0.4% to 0.8% NaOH.

Test runs of complete lots showed conclusively that unless residual caustic was kept within these limits, or very close to them, losses in yardage resulted, and it was difficult to maintain proper widths. It was proved further that the steam required to maintain the heated sprays and recuperator was more than paid for in yardage gained by the good washing so accomplished. Checks on such lots showed added gains in yardage of from 6 to 8% consistently over goods not well washed. Add to this the yardage saved in torn edges, plus reduction in claims for narrow widths, and the extra cost of doing the job properly was counterbalanced by the benefits obtained.

**ANOTHER SERIES OF TESTS** was on mercerizing gray goods and half-bleached goods. The method used in any particular plant is generally decided on for reasons of convenience, or, as is more frequent, depends on the fabrics to be processed. For example, some constructions have tight selvages that are more easily torn if subjected to the mercerizing process after boiling; and such fabrics are best mercerized after a preliminary desizing, washing, and drying.

Tests made on identical fabrics, but mercerized before or after a thorough kier boiling, showed no appreciable difference as to luster after the final processing. Since gray goods are water-repellent, they do not absorb the heavy caustic solutions readily, and tests were made with penetrants to increase the caustic pick-up. There was a definite increase in caustic absorbtion noted at the time of mercerizing, but in the finished goods no visible difference was apparent between gray fabrics mercerized with a penetrant and gray fabrics treated with straight caustic. There was, in one instance, an increase in filling strength of 6%, which would be of value in meeting rigid specifications with cloth slightly on the light side.

Reviewing the results of this work, which can be carried out with a minimum of personnel and extra equipment, it is seen that the effort was very worth while. Too many times the idea that a process which is running without visible trouble had better be left alone is responsible for a general slackening in attention to details. Gradually the method that requires the least effort is adopted.

Today, as never before in our history, the need is for conservation of time, men, and materials. Without excessive investment, new machinery, or drastic changes in process, it is often possible to effect real savings, increase production, and improve quality, simply by a general overhauling of existing methods.

# Post-War Changes in Textiles

## Canadian mill men discuss progress in equipment, processes and products

**WHAT'S COOKING FOR TEXTILES** after the war in new equipment, new processes, and new products was discussed at a meeting of the Eastern Division, Canadian Textile Society, held March 27, in Montreal. Principal speaker was Ralph Chisholm, New England District Manager of TEXTILE WORLD. An abstract of Mr. Chilholm's paper follows:

Many people in the textile industry have an idea that after the war we are going to see some new and wonderful developments—developments that may make our present equipment obsolete within a short period of time. Priorities have stopped the sale of new machinery and second-hand machines have practically disappeared from the market, so each year at the present pace there should be a greater demand for new machines until they are again available. New textile materials are entering the field, making the manufacturing job more complicated and changing the specifications of new machines. There are many other reasons why we should expect major changes to come at the close of the war that should revolutionize the industry.

As we look back over the years, however, we can remember that each major development took years to become firmly established—it did not replace the older machines overnight. And after the war it will take years to build enough machines of standard designs to fill the demands of the industry. Machinery manufacturers have orders for new machines on their books now that cannot be filled until Government control is lifted and they could have many more orders without quoting price or delivery if they dared to open their books.

Machinery manufacturers have analyzed present conditions of mill equipment and have tried to push their development work. Most of them have made some progress, but all of them have been held up because of a shortage of men and materials. Again, it has been hard to get the right materials for new designs and substitute materials do not always prove satisfactory.

**SOME DEVELOPMENTS** were far enough along at the start of the war so they have benefited under pressure of high production. The shortage of silk has forced the use of Nylon and high-tenacity yarns for emergency fabrics. After the war, these yarns will be available for other fabrics. Women may then have hosiery that will satisfy their desires. Automobile tires may use the same yarns that are now going into Army equipment. Similar yarns have been specially prepared for mesh fabrics and because they are non-corrosive and flexible they have been used to replace metal screening.

Other synthetic yarns are increasing in demand, and will find a place in the textile field, depending on their price and adaptability. Casein fibers are used in dress fabrics today. Soy bean fibers are making progress. We will surely see new glass fabrics for the home after the war.

Fabrics are being made without yarn by impregnating cotton or other fibers—which have merely been carded, parallelized, and formed into a lap—with latex or other suitable binder or adhesive. Warp-knit fabrics produced on tricot knitting machines will compete with some woven fabrics because of their low manufacturing cost.

One machine that was new to weaving mills about the time the war started was the automatic bobbin winder. The machines that were sold will provide performance records for the manufacturers and give them a chance to improve the design if necessary before more can be released.

Most research and development workers in the textile field find it necessary to keep two things in mind: (1) is it flexible and (2) will it sell?

It is possible that the Perlok system and other methods will be used to convert rayon tow to top direct without carding. J. L. Lorke and H. H. Perry, co-inventors of the Perlok system, purchased a worsted mill in 1930 and attempted to operate entirely from rayon tow. Continuous filament rayon was passed through a converted roving frame and the untwisted filaments were broken into a sliver of staple fibers. The sliver went direct to the spinning frame, and they were able to compete with yarns spun on the worsted system from waste. Subsequently came a change in the market price of waste and they were unable to lower their prices of Perlok yarn.

Then staple fiber made headway with cotton spinners and their low costs eliminated the spun rayon yarns from the worsted mills except for blending purposes. The Perlok system was then converted to the cotton system, but again they were faced with a marketing problem because of price competition—rayon tow could not be produced at low cost in small quantities. The war has helped the inventors and, as the demand for spun rayon yarn increases, there may be other changes that will reduce their costs and put them in a better position to meet competition.

The textile industry is constantly changing to meet demands in style or to bring the cost in line. These changes come fast and are many times the reasons for killing a development that seemed to have great possibilities. Style changes require flexible organizations and markets will change with periods of prosperity and depression. The cost of development must be returned in the selling price of the machine, and it is important to consider the number of machines the market can use and the length of time required to sell them to the industry.

**MANY OF THE MAJOR CHANGES** have come from men outside the textile industry, and it is possible that the chemical industry will play a more important part than it has with the production of rayon. New finishes for fabrics have been developed that may simplify some of the manufacturing problems.

Several years ago a college professor compared the uncomfortable clothing that man is wearing today with the feathers of birds and the fur of animals. A bird can open up its feathers to cool off; it can close them tight for insulation to keep out the cold; it can have a waterproof covering when it rains; and the bird can turn its head from side to side without chafing its neck against the edge of a collar. These thoughts were passed on to the textile research organizations to give them something to shoot at, but it will take the combination of manufacturers, chemists, and merchandisers to have new developments accepted by the general public.

ANNUAL

*knitting section*

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# A New Knitting Industry in the Making

**THE KNITTING INDUSTRY** thinks—and justifiably so—that it has been through something during the last year-and-a-half. It was a war casualty months before Pearl Harbor, and since then has faced increasing shortages of materials and manpower. More and more of its product has gone into military use. One branch of the industry—the full-fashioned hosiery division—had a complete revolution in its raw material basis. Some plants have been switched from hosiery manufacture to the production of plane parts. Changes in specifications for military fabrics have forced constant technical alertness, particularly in the dyeing of hosiery and of underwear.

Staggering as is the sum total of these changes, and their effect upon the industry's economic and technical status, this is only the beginning. Post-war trends promise a revolution which will make changes to date seem mild in comparison. The important point is that those post-war trends are already in the making. Things that are happening under the surface now will determine the pattern of the industry after the war. Consequently it is vital for every manufacturer to know what those trends are.

That is the function of the 1943 Annual Knitting Number of TEXTILE WORLD. It is inventory time in the knitting industry—and the most critical inventory time in its history. It is vitally important to take stock now when the industry's lines have been re-formed since the crisis first struck, and yet are constantly re-forming as restrictions of all kinds become aggravated.

Among the many trends in the post-war picture which deserve most careful watching are: (1) the inevitable use of synthetics where they fit in best for use in knitted materials; (2) the development of completely new types of knitted products; (3) the development of completely new equipment for production of knitted products; (4) the almost certain increase in warp knitting; (5) the simultaneous breaking down of some of the barriers between knitting and weaving plants, with the very real possibility that weaving mills will, in some cases, put in knitting equipment; (6) the inevitable competition between seamless and full-fashioned hosiery, particularly when supplies of the Nylon-type of synthetic are again available. . . . These seem to be enough problems, but they are only suggestive of the picture as a whole.

No one knows the answers to the questions raised by the enumeration of these post-war problems. But the industry must gradually find the answers, and to do so it must be alert to the current trends which will determine the outcome. This special section of TEXTILE WORLD presents those trends from the four major "compass points" of the industry as dramatized on the front cover of this issue, and reproduced above.

ANNUAL *knitting section*

# Knitters Essential, for Soldier or Civilian

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**MOBILIZED** for serving the armed forces back in the first half of 1941, the knit goods industry has moved forward in step with the rise of Government orders until such business absorbed nearly 50% of the output of related garments in 1942. War orders are moving on to a possible 60% in 1943. Lend-Lease is becoming more and more important and civilian trade will get what is left. Simplification and standardization will be brought in to make what is relatively a small amount go a long way.

Half-hose manufacturers, mills on shirts and drawers, and makers of staple sweaters, knitted caps, etc., are assured of substantial business through war orders. In order to supply their civilian customers they will be pushed to the limits which raw materials and available workers permit.

Other divisions of the knitting industry are nearly all classified as sources of essential supplies to the civilian population and as such will be given every Governmental encouragement which is not detrimental to the war effort.

**HOSIERY MILLS**, which made 35,000,000 doz. pr. of full-fashioned goods in 1942, 71% rayon, after converting from a 41,800,000 doz. pr. production, about 80% silk, in 1940, are looking forward to a production of 31,000,000 doz. pr. this year, a figure close to the rock-bottom basis set by WPB as a result of its minimum-need survey. The reduction from 1942 will be due to further restrictions on yarn and further losses of operatives to the armed forces and war industries. Full-fashioned was for the greater part of 1942 a civilian supply industry, but with the advent of WAACS and WAVES, full-fashioned mills received their first war orders.

The half-hose branch of the field, after supplying about 17,000,000 doz. pr. to the war effort last year out of total production of 52,000,000 doz. pr. (of which 14,400,000 doz. pr. were slacks, crew and athletic socks) is going forward to a probably larger proportion this year out of a somewhat smaller total production. The Government business of 1942 amounted to about 46% of the total production of comparable half-hose. The figures are largely guesswork at the moment, but percentage may touch 55% this year.

Government controls, of course, have set the hosiery scene. Yarn allotments, ceiling prices, color-range limitation, etc., were all taken in stride. The full-fashioned group was, however, quite literally shocked by the rayon hosiery ceilings and regulations announced by OPA on March 8 in MPR339. These prices were not only low in themselves, but they so cut the customary margins between branded and unbranded lines as completely to discourage the former. This may be OPA's cloaked intention, say some executives, who know that brands have already largely disappeared from the British scene. MPR-339 goes on to set ceilings for various levels of distribution, classes of retailers and classes of hosiery. A labeling plan is set up and a forthcoming cut in prices of "Class B" hosiery is provided. WPB order L-274 sets hosiery standards to conserve materials and manpower.

Consumer education has formed a large part of the promotional programs of mills on rayon hosiery, which plus technical advances have much reduced complaints and claims from the early days of rayon's introduction in full-fashioned. Fine cotton hosiery, fruitlessly promoted before the disappearance of silk and Nylon, has risen to an annual production of 2,400,000 doz. pr., but, according to style authorities, is unlikely to rise much further, being limited in appeal to the more stylish women in uniform and to the "country set."

Opinion on any real upturn in women's seamless, based on the "bare-leg" vogue, varies. Some believe that the absence of Nylon and the fine rayons will retard any development here, while some others expect this summer to bring a real revival in this item. Both sides feel that as a style it holds great importance for post-war.

Half-hose simplification is one way to cut the complications of reduced production. Cottons and rayons will dominate, with increased scarcity of wool hosiery because machinery on such lines is largely occupied on war work. Spun rayon will substitute.

The absence of covered rubber yarns particularly for use in odd-length hosiery such as slacks, knee-length, etc., has pushed knitters to develop ribbed tops of unusual elasticity in order to make the hosiery stay up without garters. Moderately successful, it has not come up to the elastic top involving rubber, and, as soon as the latter is again available, there will doubtless be renewed push in the rise of garterless hose.

Staple underwear will continue under style restrictions (Photo by Globe Knitting Works)

**UNDERWEAR MANUFACTURERS**, who in 1942 turned out nearly 30,000,000 doz. units of cotton or wool underwear for both men and women, delivered about 12,000,000 doz. to the Government. This is a proportion of war orders to all others of about 42%. In 1943 the percentage is mounting higher and the total overall production will probably not be so large as last year because of scarcities of yarns and labor. Lend-Lease will take a substantial quantity, which also will considerably cut the volume available to the consumer.

Most mills which have swung to war business in a big way have already, or are about to, cease taking civilian orders for future delivery. They will make civilian goods as opportunity offers and deliver to selected, regular customers as they will accept.

Making the most of what you've got is one of the purposes behind the simplification program which, under L-247,

Short sock with well-knit ribbed top as substitute for the rubber elastic top previously used (Sample from Holeproof Hosiery Co.)

## Knit Underwear and Hosiery Produced in War Years and in Last Normal Year

**Knit Cotton and/or Wool Underwear**

*(Figures are thousands of dozens)*

| | 1942 | 1941 | 1939 |
|---|---|---|---|
| Men's and Boys..... | 25,882 | 23,234 | 17,278 |
| Women's and Misses... | 3,550 | 3,653 | 3,494 |
| Children's, Infant's and Unclassified..... | 7,067 | 7,085 | 7,016 |
| Total..... | 36,999 | 33,972 | 27,788 |

**Knit Rayon Underwear**

| | | | |
|---|---|---|---|
| Circular..... | 8,965 | 9,229 | 10,028 |
| Warp Knit..... | 2,772 | 2,766 | 1,716 |
| Total..... | 11,737 | 11,995 | 11,744 |
| Grand total — all underwear..... | 48,236 | 45,967 | 39,532 |
| Percentage on Government work of Total Production | 26% | 9% | 6% |

**Hosiery Production**

*(Figures are thousands of dozen pairs)*

| | | | |
|---|---|---|---|
| Full Fashioned (total). | 35,082 | 41,818 | 43,822 |
| Rayon..... | 22,238 | ..... | ..... |
| Silk..... | 5,998 | 32,645 | 43,608 |
| Men's Seamless *Half Hose..... | 38,040 | 36,997 | 32,693 |
| Slack Socks..... | 14,391 | 12,916 | 10,214 |
| All Hosiery including above and Children's, Infant's and All Other | 147,902 | 149,968 | 140,681 |

Sweater coats for women will continue to have style appeal (Photo from Woolknit Associates)

goes into effect on underwear on May 1. A reduction of 75% in number of styles is effected by limitation on number and kinds of fabric a knitter may use and on number of models of each type of garment in his line. Each mill presumably will concentrate on the fabrics and styles for which its machinery is best suited. Decorative trimming is out as well as rayon striping. Fewer styles will help the inventory problem of retailers, jobbers, and mills, although the mills are close to bare shelves. The industry finds the OPA ceilings and standards too restrictive.

In women's underwear the small proportion which was silk has converted to rayon and mills are sharing with hosiery mills in the rayon allotment plan set up when silk was frozen. Rayon underwear had previously established a place for itself, and the changeover was not difficult. War orders for women's underwear to clothe WAACS and WAVES came into being lately.

**OUTERWEAR MANUFACTURERS** made a direct contribution to the clothing of the American soldier by gaining the introduction of the sweater as a general-issue garment. At the start of the war knitted caps were about the only knitted outerwear item which was being bought for the Armed forces. Now the list extends through some five types of worsted sweaters to mufflers, wristlets, toques, bathing trunks, etc. Active cooperation by outerwear men in preparation of experimental types resulted in the adoption of these garments more rapidly than otherwise. The trade points out that the sweater was not a G. I. garment during World War No. 1.

The proportion of Government business in outerwear has been increasing, but is not yet so large as in other fields. Principal restriction on civilian goods has come through limitation on use of wool. This limitation is effective only on spinners, but the result is to bring into use among knitters further adaptations of blended yarns. The 1942-43 winter season was a very active one, since, with fuel shortages, there was a large utility buying of sweaters in many parts of the country. Staples in men's wear and "classics" in women's wear have had the call.

Late in March an industry program of garment simplification to save labor and raw materials was presented by the industry to WPB. The plan involved limitation on number of styles for fall 1943, limitation on garment lengths and colors, and elimination (where possible) of accessories, trimmings, fancy backs, belts, collars, puffed sleeves, and in fact of all features that do not contribute to the serviceability of the garment. In addition to limitation on number of colors, there is also a scheme of standardization proposed to simplify the yarn-dyer's problem and effect saving of his labor and materials.

The freezing of elastic rubber yarns wiped out what had come to be a standard item in bathing suit lines. Worsted knit swim suits had inherent elasticity which made up for lack of rubber yarns, and new numbers knit of rayon and mercerized cotton, either as a double fabric or with the rayon plated on the face of the cotton have been devised which have successful form-fitting features.

**POST-WAR DEVELOPMENTS** are, in the mind of most knitting executives, pretty much guesswork. Perhaps the only certainty is change. The war's conclusion will find stocks non-existant in first hands and probably scant with jobbers, retailers and consumers. The Army is unlikely to flood the market with soldier's wear for the reason that a large standing army will still be required and any surplus will be held to clothe these men. Lend-Lease and private enterprise will strive to clothe a devasted world and thus put pressure on domestic production for months, if not years, after the main military effort is over.

The most constructive planning which mill executives see for post-war use is the preparation of new products. These involve principally the yarns withheld from civilian use during the war, with some refinement in construction and finish to meet particular service needs. Circular hosiery will vie with full-fashioned for women's favor. Warp-knit fabrics will pick up their march to new highs in production.

Sales executives find numerous features of the present sellers' market desirable for continuation in post-war, but those who are realistic about it expect that competition will bring an abandonment of the easy way and give success only to those who adapt themselves to the new tempo with service to customers and satisfaction to employees.

ANNUAL *knitting section*

# Substitute Fibers Gaining Knit Goods Leadership

★ ★ ★ ★ ★

By WILLIAM B. DALL
*Managing Editor, Textile World*

**WARTIME CONTROL** on yarns set up a whole series of problems for the knitting industry during the last 18 months, the solution of which has demonstrated again the American ability of successful adaptation.

The emergency eliminated silk from the civilian field by cutting off its source, and the scant available supplies were frozen for military use. Also eliminated from civilian use were Nylon, the new high-tenacity rayons, Vinyon, rubber, etc., since the military requirements of these materials overran the available supplies.

Yarns still available, but only in regulated quantities, include rayon (viscose, cupra and acetate), combed-cotton, wool, and spun rayon. Actually the controls on combed cotton have been postponed, but will be effective soon. Carded cotton yarns are still not specifically limited, but are difficult to obtain even with high priorities. Wool yarns are in effect limited by limitations on the amount of wool available to spinners, and spun rayon yarns are circumscribed by the limited amount of staple fiber. All have price ceilings.

Two years ago hosiery without silk, bathing suits without elastic rubber yarns, outerwear without free choice of woolen or worsted yarns would have seemed a nightmare. Today they are accomplished facts. The substitutes or adaptations are doing an excellent job for the civilian population, while the specialized fibers have gone to war.

**ALLOCATION DETAILS** affecting the various available fibers indicate the narrowness of the scope within which various trade branches have had to work.

Rayon was allocated to knitters almost as soon as silk was frozen. Supplementary Order M-37 was first promulgated in August, 1941. It has been amended several times. In its latest form it allocates 17% of the rayon industry's available viscose and cupra yarn to the hosiery trade, and others, to be acquired by individual concerns in relation to the quantity of raw silk and/or Nylon consumed by them in the first half of 1941. A "hardship pool" to take care of particular needs outside of this routine allotment is now given ½ of 1%. As conversion of rayon producers to high-tenacity and other war types proceeds, less will be available for knitters. Of actetate production 6% is allocated. Hosiery mills have been most affected by this status since this trade had been consuming 85% of all the silk imported in recent years, and over 99% of full-fashioned hosiery was made of silk. The change-over to rayon was made fairly gradually since all opened bales of silk were allowed to continue in manufacture, and, with additions of cotton tops, feet and reinforcements, mills made their available silk go a long way and carry them at least in part over a six-month period while rayon was being put into the works and handling methods brought to an improved state.

At first the finest deniers were eagerly sought as producing sheerer, more silk-like hosiery. But these have increased in scarcity until 75 den. is now generally speaking the finest; 100-150 den. the most likely count of which women's hosiery will be made for the duration. What 50 den. yarn is available is not permitted to be used on coarser than 51 gauge machines. Underwear mills had relatively few problems in turning from silk to rayon as the conversion had been under way for several years.

Gotham's new "Tow-to-Top" hosiery in a show window. It has the appearance of a high grade lisle stocking.

Combed cotton yarns have been in such enormous demand for military items—twills, poplins, undershirts, etc., that limitations on civilian use were obviously needed. Order M-155 permitted use of 60% of 61s to 90s and 35% of the coarser counts to be used for civilian needs. Effective date for these provisions has been postponed several times. Apparently priorities are taking care of the situation. A deal was made this year with British spinners for special shipments of combed yarns earmarked for the hosiery trade to be used as reinforcements in rayon hosiery—quantity involved is said to be about 300,000 lb. per month. Scarcity of combed cotton yarns affects also the newly-developed lisle full-fashioned.

Wool restrictions have been relaxed somewhat in recent months. They apply to the amount of new wool the spinner may put into manufacture, whether he consumes his own yarn or sells it. At present the figures are 30% for worsted system and 5% for woolen for unrestricted use each quarter, based on half of the amount used in the first six months of 1941, plus 40% worsted and 25% woolen which is restricted for use in blends with reworked wool or other fibers. Adequate supplies of reworks are available for woolen blending. Rayon staple, the obvious blend for worsted wools, is itself allocated, but reasonable amounts are earmarked for the worsted industry. Other forms of spun rayon are in use in hosiery, underwear and outerwear. The newly introduced "tow-to-top" variety has already appeared in hosiery which vies with the cotton lisle in "tweedy" effect.

**WHEN "SUBSTITUTION DAY"** arrived after the freezing of silk, there was little question what yarns would be utilized. At first it was more Nylon, since that had already proved its superiority to silk and on unrestricted terms had beaten silk in the higher price brackets. Then with Nylon frozen.

it was rayon. The viscose and cuprammonium types got the first start because already tried out; then acetate, as difficulties were overcome.

Before the consumer could receive these new-type stockings there was much experimental operation. Lack of elasticity comparable to that of silk or Nylon and susceptibility to damage in the mechanism of full-fashioned knitting were two of the prime difficulties. Proper twist aided in overcoming the first difficulty, while suitable oils and sizings overcame the second. When in consumer service as a stocking, proper twist aided the rayon to resist snagging. Reduction of rayon strength when wet, made the all-rayon foot rarely completely satisfactory, and the cotton reinforced toe and heel was developed.

Acetate rayon proved an unruly fiber on full-fashioned machines. The wiriness of the yarn resulted in too frequent press-offs. This has been surmounted by suitable soaking solutions and pretreatment. The lower tensile strength of the yarn made it a second choice for those who had enough rayon of other types. However successful stockings of acetate are now on the market, and the higher wet/dry strength ratio than the regenerated cellulose types gives some advantage. Mill men who have worked with rayon, recommend segregating unit lots and making sure that leg and foot are made from the same lot since minor differences between lots have been known to produce visible differences across the ankle of full-fashioned hosiery.

Utilization of spun rayon in blends and otherwise has been the fiber-feature of a few half-hose and underwear lines and numerous outerwear garments. Techniques have been carefully developed by spinners to produce a regular, even-running yarn. Knitting has not been difficult. The change-over has been gradual as spun rayon and blended yarns had been in growing use before the war emergency broke.

Lack of covered-rubber yarns has radically changed the situation in garterless hosiery, foundation garments, and in some types of underwear and bathing suits. In half-hose the knitting of ribbed tops of maximum elasticity has helped retain the popularity of odd length items. Bathing suits knit of worsted yarn have all the form-fitting characteristics needed without rubber. Suits of rayon and mercerized cotton in combination have been developed which now almost equal worsted in those characteristics. New types of synthetics which have unusual elasticity have been introduced, such as Vinyon E, which, if sufficiently available, would improve the situation in foundation garments and other lines which are almost wholly dependent on yarn elasticity.

This bathing suit by Jantzen is of printed rayon jersey with knit cotton lining. It has excellent elastic properties though no rubber yarn is used.

Synthetic yarn manufacturers, if unhampered by wartime limitations, could turn out fibers with a wide range of useful characteristics. Some few may become available as months go by, if not using critical materials or themselves needed for the war effort—after the war almost anything may happen in new fabrics and useful finishes. The latter has started in only a small way as applied to knit goods, but obviously, shrink-proofing wool, spot-proofing or waterproofing hosiery, Sanitizing underwear, rain-proofing or mothproofing outerwear would add consumer appeal.

Knitting firms which have a stake in consumer satisfaction, have done careful promotion jobs in the introduction of new fibers or changed lines. Particularly in the handling of women's rayon hosiery, the consumer has been told through numerous channels how to take care of the stockings with proper laundering and drying. Sales people have been educated to talk the merits of the new hosiery rather than to play it down as a mere wartime makeshift as happened too frequently in the early part of the change-over. Gradually returning confidence indicates the value of these campaigns.

Miscellaneous fibers such as mohair, rabbit hair, etc., can be adapted to yarns which add charm and warmth to knit goods. Aralac, soybean fibers, etc., are synthetics which perform a similar service and which are available despite the war. Celanese has developed a yarn, of which one of the component filaments measures 1/8th denier. It is eight times finer than silk.

Government knit goods are for the most part being run of yarns with which knitters are thoroughly familiar such as carded and combed cotton, woolen and worsted, merino, and (with the advent of WAACS) rayon. One novelty, the jute sock, is not regarded as having any useful counterpart in civilian life. Merino yarns are important for soldiers' part wool hosiery and underwear—spinning capacity on such yarns is nearly all occupied in supplying Army needs.

**AFTER THE WAR**, when fiber restrictions may be lifted, a brave, new world of knit goods is likely to evolve. Slow at first, because of the probable pressure for mere production to fill vacuums at home and abroad, the improved materials will rise in importance and eventually displace some of the previous standards.

In hosiery these improvements will be numerous—for not only will Nylon return, but new synthetics, each with some particular virtue, will be presented to the consumer for approval. It may be years before the field settles down. The principal new fiber will be the high-tenacity rayons. Although limited now to military use, small lots have been experimented with to knitters' high satisfaction. Silk will return for certain specialized uses, primarily because of its probable importance in any reparations settlement. One guess as to the components of women's postwar hosiery sets Nylon as accounting for 25%, silk for 25%, and high-tenacity rayons for 50%. There will, of course, be some cottons, some miscellaneous fibers, and special-purpose items including protein fibers, thermoplastics, etc. Seamless hosiery of the ultra-fine type is expected to run full-fashioned a close race, especially when made of fine yarns susceptible of preboarding. Rubber yarns will return and the new elastic synthetics will permit previously impossible effects.

Underwear will doubtless evolve in post-war more slowly than hosiery. New fibers will be tried out for their distinctive characteristics, and new constructions aimed at meeting particular conditions of heat, cold, excess moisture, etc., will come forward.

Knitted outerwear should be another user of the new fibers, picking those that add service, comfort and decoration to the garments. Basicly wool and the protein fibers are expected to be the outerwear standard.

New fibers will probably be more startlingly and more quickly in evidence in knit goods than in the other branches of the textile field.

ANNUAL *knitting section*

# Knit Goods for Military Purposes

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## Cushion-sole socks, mosquito gloves, and OD underwear among recent developments

**THE CUSHION-SOLE OR JUNGLE SOCK** is an excellent example of the way in which textiles originally developed for civilian use are being adapted to meet military requirements. Several years ago W. B. Davis & Son, Inc., Fort Payne, Ala., brought out a terry sock. This sock consisted of an ordinary anklet-type sock with yarn loops projecting from the outside to produce a terry effect. The present cushion-sole sock developed from the terry sock looks, at first glance, like any other sock, as shown in Fig. 1a. When the sock is turned inside out, the terry effect appears on the high heel, sole, and ring toe, as illustrated in Fig. 1b. The sock is covered in Specification PQD 236B; construction data are given in the accompanying table.

The cushion-sole sock was first adopted for use by soldiers in the desert and jungle, as it provided excellent protection against heat and cold found in these regions. Also, as the yarn used for the terry stitch is of wool, it absorbs perspiration. When knit with every course of terry stitch, the sock offers excellent protection against the infiltration of sand.

Considerable discussion has centered about these socks, as it is thought they are well suited for wear under many different service conditions. The cushion sole, it is stated, tends to minimize the formation of blisters on the feet of soldiers.

Attachments are required for knitting the terry effect on both automatic and non-automatic machines ranging from 108 to 130 needles. Attached to the knitting machine are special cams and together with sinkers of different design form the terry stitch. Sinkers of three different sizes are used to produce the loop section.

This type of sock may be easily made by all manufacturers that formerly produced the terry sock. Others will have to add attachments to their machines. As the terry sock formerly produced for civilian use had to be knitted inside out, no difficulty should be encountered with the cushion-sole sock as the terry is on the inside.

The yarn for the terry stitch must be all-wool and spun on the worsted system. This stitch must be knitted into every course in the high heel, sole, and ring toe. The heel and toe may, however, be knitted every course or every alternate course. When knit every other course, a reinforcing yarn must be knitted with the body yarn in every course.

**SOCKS, LIGHT WOOL, OD,** are covered in PQD 334, another recent specification. Pertinent data on these socks are given in the table. This specification requires that the color of the socks match an approved shade of OD No. 9 which may be obtained by dyeing the stock, yarn, or knitted socks to yield a minimum of heather effect between the cotton and wool.

**MOSQUITO GLOVES** are a relatively recent item developed for use by soldiers in the tropics, especially those that stand guard duty. These gloves are made of canton flannel which is of sufficient thickness to prevent a mosquito from penetrating through the glove and reaching the skin of the wearer. A knitted wristlet about 4 in. long protects the upper part of the hand and the wrist.

These gloves are practically the same as work gloves and are comparatively simple to manufacture. Construction is shown in Fig. 2, one glove being turned inside out. The cotton flannel must have a thread count of 66x38 and weight 10-oz. per sq. yd. and be dyed OD No. 4. The tubing used for the wristlet is 1x1 circular rib knit. Width shall not be less than 2¼ in. and weight not less than 12 yd. per lb. Tubing is OD No. 4 in color. These gloves are covered in P.Q.D. 228A.

**UNDERWEAR** will continue to be procured in large quantities throughout

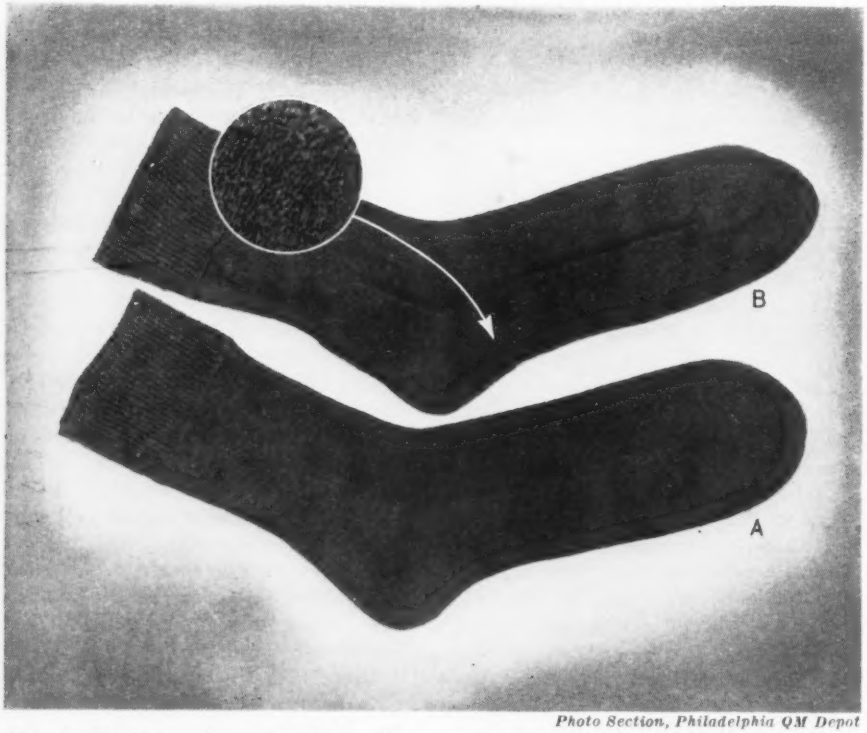


*Photo Section, Philadelphia QM Depot*

Fig. 1. Cushion-sole or jungle socks: *a*, outside appearance; *b*, inside of the sock showing the terry stitches on the ring toe, sole, and high heel.

the current year. The principal change in underwear is that recent specifications call for its production in olive drab shade.

Specifications PQD 73A and 74A covering undershirts, 25% and 50% wool; and drawers, 25% and 50% wool, respectively, were discussed in the April, 1942, issue of TEXTILE WORLD. Recently these two specifications were amended and reissued as PQD 73B and 74B. The most important change was in color from a silver gray to OD No. 9. The approved shade may be obtained by stock, yarn, or piece-dye methods yielding a minimum contrast or heather effect between the cotton and wool. The specifications state that the garments must show good fastness to laundering and perspiration when subjected to tests outlined in Federal Specification CCC-T-191. Dyeing procedures are given in an article on page 104 of this issue.

Specialized type of knit underwear, such as are used by the WAAC and Nurses' Corps, are relatively small procurements and have been subject to frequent changes.

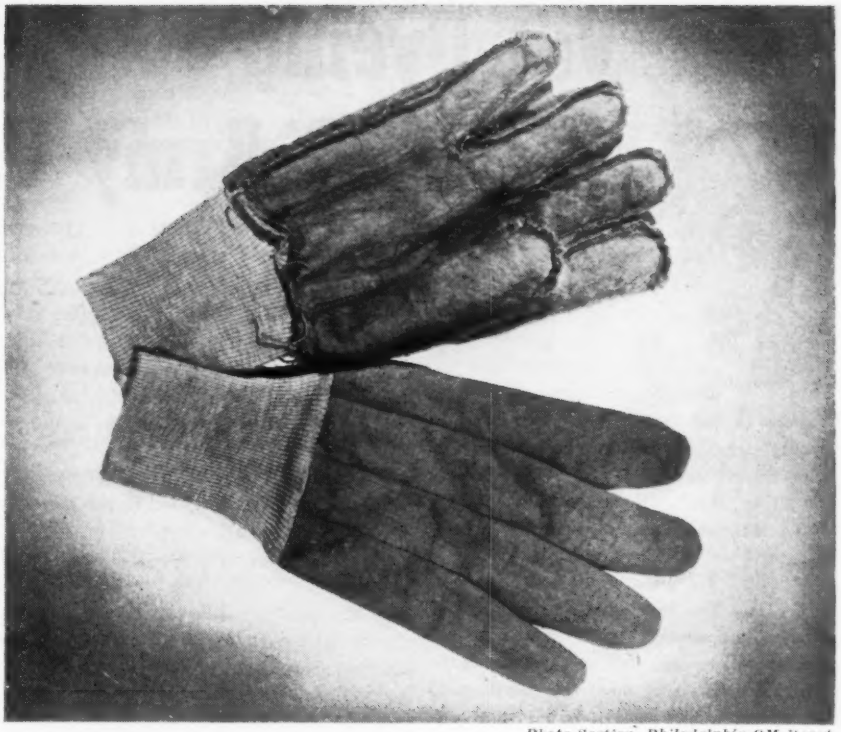

*Photo Section, Philadelphia QM Depot*

Fig. 2. Mosquito gloves provided with a long knitted wristlet for use by soldiers standing guard duty in the tropics.

## Manufacturing data on Army socks covered by specifications PQD 236B and PQD 334.

| Specifications | Yarns | Carded | Combed | Color | Number Ends | | Percent Fiber Content | | Machine Diameter | Needles | Courses | Needles at Gore (each side) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Body | Reinforcing | Cotton | Wool | | | | |
| PDQ236-B | | | | | | | | | | | | |
| Class A | 1/20 to 1/26 wstd. | | | OD#9 | | | | | 3½ | 108 to 130 | | 14 to 17 |
| Sub-class 1. | merino | | x | | 2 | 1 | 50 | 50 | | | | |
| Sub-class 2. | merino | x | | | 2 | 1 | 50 | 50 | | | | |
| Class B | 1/10 to 1/14 wstd. | | | OD#9 | | | | | 3½ | 108 to 130 | | 14 to 17 |
| Sub-class 1. | merino | | x | | 1 | 1 | 50 | 50 | | | | |
| Sub-class 2. | merino | x | | | 1 | 1 | 50 | 50 | | | | |
| Class C | | | | OD#9 | | | | | 3½ | 108 to 130 | | 14 to 17 |
| Sub-class 1. | 1 end wool, 1 end comb cotton | | | | 2 | 1 | 50 | 50 | | | | |
| Sub-class 2. | 1 end wool, 1 end carded cotton | | | | 2 | 1 | 50 | 50 | | | | |
| Class D | 1/20 to 1/26 wstd., 13/1 to 18/1 cotton | | | OD#9 | | | | | 3½ | 108 to 130 | | 14 to 17 |
| Sub-class 1. | 1 end wool, 1 end comb cotton | | | | 1 of 2 ply | 1 | 50 | 50 | | | | |
| Sub-class 2. | 1 end wool, 1 end carded cotton | | | | 1 of 2 ply | 1 | 50 | 50 | | | | |
| Class E | Bradford-spun core 1/20 to 1/26 | | | OD#9 | 2 | 1 | 50 | 50 | 3½ | 108 to 130 | | 14 to 17 |
| Class F | Bradford-spun core 1/10 to 1/14 | | | OD#9 | 1 | 1 | 50 | 50 | 3½ | 108 to 130 | | 14 to 17 |
| PQD334 | | | | | | | | | | | | |
| Class A | 2 ends 1/30 wstd. or 20/1 cotton | | x | OD#9 | 2 | 1 | 50 | 50 | 3½ to 3¾ | 156 to 176 | 25 | 24 |
| Class B | 1/15 wstd. or 10/1 cotton | | x | OD#9 | 1 | 1 | 50 | 50 | 3½ to 3¾ | 156 to 176 | 25 | 24 |
| Class C | 1 end 1/30 wstd. and 1 end 20/1 cotton | | x | OD#9 | 2 | 1 | 50 | 50 | 3½ to 3¾ | 156 to 176 | 25 | 24 |
| Class D | 1 end 1/30 wstd., 1 end 20/1 cotton | | x | OD#9 | 1 of 2 ply | 1 | 50 | 50 | 3½ to 3¾ | 156 to 176 | 25 | 24 |

ANNUAL *knitting section*

# Vat Dyeing OD Army Underwear

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**Soldiers in the theater of operations frequently wash their underwear and then hang it on bushes or spread it on the ground to dry. To reduce the visibility of the garments, so they cannot readily be seen from enemy planes, the Army is now calling for underwear dyed an olive drab color. The following article describes in detail procedures for vat dyeing knitted fabrics, yarns, and raw stock, and woven fabrics for shorts to meet the latest specifications. Owing to the importance and timeliness of this article, we shall be glad to furnish reprints of it to any textile mills requesting them.**

By O. W. CLARK

*Technical Service Dept.*
*Calco Chemical Div., American Cyanamid Co.,*

**OD KNITTED UNDERSHIRT FABRIC** covered by Specification PQD344 can be manufactured from yarn dyed in the raw stock or in the yarn form, or it can be dyed in the piece.

*Procedure for Vat Dyeing Knitted Fabric.* The tubular knitted fabric is dyed on the common type of rope dyeing equipment known in the trade as reel machines, dyebecks, or boxes. These machines are not designed to cope with the normal requirements of vat dyeing, and therefore the selection of dyes and procedure must conform to the limitations of the available equipment. The following formulas apply to 100 lb. of fabric dyed in 240 gal. of liquor.

O.D. No. 9—M-103 Group A Dyes

| | |
|---|---|
| Vat Khaki 2G Paste | 3 lb. |
| Vat Olive R Paste | 3 lb. |
| Vat Brown R Paste | 12 oz. |
| Caustic soda flakes | 5 lb. |
| Sodium hydrosulphite | 1 lb. |

Stock Vat: 20 gal. at 140°F.

The dyebath is prepared at 60°F. with:

| | |
|---|---|
| Caustic soda flakes | 10 lb. |
| Sodium hydrosulphite | 10 lb. |
| Synthetic detergent | 2 oz. |
| Water | 220 gal. |

The scoured and well-wet-out fabric is entered into the dyebath at 60°F. The reduced stock vat is added to the dyebath in 4 portions, allowing a 5-min. interval after each addition. The steam valve is then opened and the temperature raised to 140°F. There is then added in 4 portions, allowing a 5-min. interval after each addition, a total of 30 lb. of common salt.

The cold-water valve is opened and the dyed fabric is rinsed in the overflowing dyebath with a copious flow of cold water until neutral to Clayton Yellow paper.

One pint of 100-volume peroxide is then added to the bath, followed after 5 min. by 1 qt. of concentrated sulphuric acid, and the fabric is run for 10 min. at 120°F. A fresh bath is prepared containing 5 lb. of soda ash, and the fabric is run for 5 min., after which there is added 2 lb. of soap flakes. The temperature is raised to the boil and the cloth soaped 20 min. at the boil. Rinsing in warm water completes the process.

NOTES: (1) Starting the dyeing process at the low temperature of 60°F. promotes level dyeing, as the dye exhausts more slowly at this temperature than at higher temperatures. (2) In order to secure the true shade and fastness of dyeings containing Vat Khaki, it is advisable to acidify between oxidation and soaping. (3) The thorough soaping of vat dyeings at the boil is necessary in order to produce the maximum inherent fastness of the dyes. (4) Shade O.D. No. 9 may also be produced by the following alternative formulas:

| | |
|---|---|
| Vat Olive R Paste | 9 lb. |
| Vat Yellow PR Dbl. Paste | 1 lb. 1½ oz. |
| Vat Flaming Orange 2R Paste | 6½ oz. |

or

| | |
|---|---|
| Vat Olive R Paste | 9 lb. |
| Vat Yellow G Dbl. Paste | 1 lb. 1½ oz. |
| Vat Orange 4R Paste | 6½ oz. |

or

| | |
|---|---|
| Vat Grey RD Paste | 2 lb. 9½ oz. |
| Vat Golden Orange GD Paste | 3 lb. 13 oz. |
| Vat Flaming Orange 2R Paste | 6½ oz. |

The latter formula using all M-103 Group B dyes is not so fast to chlorine as the preceding formulas.

*Procedure for Dyeing O.D. No. 9 on Packages.* The yarn is wet out for 10 min. at 140°F. with 0.2 oz. per gal. freshly dissolved glue and 0.3 oz. per gal. soluble pine oil.

There is then added:

| | |
|---|---|
| Vat Khaki 2G Paste | 4.5% |
| Vat Olive R Paste | 1.5% |
| Vat Brown R Paste | 1.0% |

The dye is circulated for 10 min. at 140°F. and there is then added 1.5 oz. per gal. caustic soda flakes and 0.5 oz. per gal. sodium hydrosulphite.

After dyeing has proceeded for 20 min. at 140°F., there is added in two portions 5 min. apart, a total of 2 oz. per gal. of common salt. Five minutes after the second salt addition, the cold water supply is turned on and the packages are rinsed inside out, top washing to the sewer until neutral to Clayton Yellow Paper. The rinsing is then stopped and there is added 0.1 oz. per gal. of 100-volume hydrogen peroxide. After oxidizing 5 min. at 120°F., there is added 0.15 oz. per gal. of sulphuric acid. The acid bath is circulated for 10 min. at 120°F. and is then drained. The packages are rinsed 10 min. in running water, and the bath is then drained to the sewer.

A fresh bath is prepared with 0.2 oz. per gal. of soda ash and 0.2 oz. per gal. of soap flakes. The packages are after-treated in this bath for 20 min. at 200°F. and the bath is then drained. Rinsing twice at 200°F. completes the process.

NOTES: (1) Dyeing of the yarn in package form with sufficient levelness to be suitable for knitted fabrics is aided by the use of glue and soluble pine oil as leveling assistants and by the use of the pigment method. These assistants also promote the production of clean dyeings. (2) Use of an unusually high concentration of caustic soda in the dyebath is advisable when dyeing combinations containing Vat Khaki in order to overcome the inherent instability of the leuco compound. With some commercial brands of Vat Khaki, it may also be necessary to use a high caustic concentration in order to secure the true shade and maximum color yield. (3) The chemical concentrations have been expressed in ounces per gallon rather than in percentage because various types of package dyeing equipment in common use possess varying yarn to dye bath ratios, ranging from 1:4 to 1:15.

*Procedure for Dyeing O.D. No. 9 on Cotton Raw Stock—Pigment Method—M-103 Group A Dyes.* Wet out the stock at 140°F. with: 0.3 oz. per gal. soluble

pine oil and 0.2 oz. per gal. freshly dissolved glue and add:

| | |
|---|---|
| Vat Khaki 2G Paste | 4.0% |
| Vat Olive R Paste | 1.5% |
| Vat Brown R Paste | 0.5% |

Circulate the pigment dispersion 15 min. at 140°F. Then add 1.0 oz. per gal. caustic soda and 0.5 oz. per gal. sodium hydrosulphite. Circulate 15 min. at 140°F. and then add in two portions 10 min. apart a total of 2 oz. per gal. of common salt. Ten minutes after the last salt addition, turn on the cold water supply and rinse until neutral to Clayton Yellow Paper.

Then add 0.1 oz. per gal. 100-volume hydrogen peroxide. Circulate 10 min. at 120°F. and then add 0.15 oz. per gal. sulphuric acid. Circulate 10 min. at 120°F. Rinse 20 min. and then add 0.1 oz. per gal. soda ash and 0.1 oz. per gal. synthetic detergent. Aftertreat 20 min. at 200°F. Rinse 20 min. and then add 0.75 oz. per gal. common salt. Circulate 10 min. and then unload the stock from this bath.

NOTES: (1) Since too high a concentration of caustic soda adversely affects the suitability of the fiber for subsequent manufacturing processes, it is necessary to select a brand of Vat Khaki which will reduce and dye properly with a moderate amount of alkali. If such a brand of Vat Khaki is not at hand, then it is necessary to dye by the reduced rather than by the pigment process. In that case, the Vat Khaki stock vat should be prepared with:

| | |
|---|---|
| Vat Khaki | 8 oz. per gal. |
| Caustic soda | 4 oz. per gal. |
| Sodium hydrosulphite | 1 oz. per gal. |

*Procedure for Dyeing O.D. No. 9 on Cotton Raw Stock—Reduced Method—M-103 Group B Dyes.* Prepare stock vat as follows:

Stock Vat—Per 1000 lb. of Raw Stock

| | |
|---|---|
| Vat Dark Blue BO Paste | 7 lb. 13 oz. |
| Vat Yellow PR Dbl. Paste | 10 lb. |
| Vat Golden Orange GD Paste | 13 lb. |
| Caustic soda | 20 lb. |
| Sodium hydrosulphite | 10 lb. |

80 gal. at 140°F.

Dyebath

| | |
|---|---|
| Glue | 10 lb. |
| Caustic soda | 20 lb. |
| Sodium hydrosulphite | 20 lb. |

800 gal. at 100°F.

The dyebath is circulated through the previously wet out stock for 10 min. and then the stock vat is added and circulated for 10 min. at 100°F. The temperature is raised to 140°F., continuing the circulation. The dyeing is then rinsed until neutral to Clayton Yellow Paper. There is then added 10 lb. 100-volume hydrogen peroxide. This bath is circulated for 10 min., raising the temperature to 120°F. Then 0.1 oz. per gal. synthetic detergent is added. The temperature is raised to 200°F. and the dyeing is aftertreated for 20 min. The dyeing is rinsed for 10 min. and there is then added 50 lb. common salt. This bath is circulated for 10 min. and the dyed stock is unloaded from this bath.

**SHORTS** The woven broadcloth or muslin used for the manufacture of shorts covered by Specification PQD6-188B can be dyed on the continuous range by the reduced method or by the pad-pigment jig-reduction method. The continuous range method is popular, because it produces a uniform shade throughout a large yardage with a low manpower requirement and at a low cost.

*Procedure for Dyeing Woven Fabrics by Continuous Range Method.* Following are typical continuous range formulas:

Padder Formulas for 80 x 80 Plain Cloth

| | |
|---|---|
| Vat Khaki 2G Paste | 6.0 oz. per gal. |
| Vat Olive R Paste | 3.5 oz. per gal. |
| Vat Brown R Paste | 3.0 oz. per gal. |
| or | |
| Vat Grey RD Paste | 2.7 oz. per gal |
| Vat Orange RRTD Paste | 1.5 oz. per gal. |
| Vat Yellow PR Dbl Paste | 1.9 oz. per gal. |

Padder Formulas for Mercerized Broadcloth

| | |
|---|---|
| Vat Khaki 2G Paste | 3.6 oz per gal. |
| Vat Olive R Paste | 2.0 oz. per gal. |
| Vat Brown R Paste | 1.8 oz. per gal. |
| or | |
| Vat Grey RD Paste | 1.8 oz. per gal |
| Vat Golden Orange GD Paste | 1.6 oz. per gal |
| Vat Flaming Orange 2R Paste | 0.57 oz. per gal. |

The cloth is padded through the reduced dye and then enters the open-width range consisting of a booster box followed by rinsing, oxidation, and soaping boxes. Since the size of the booster box and the other features of the machines vary widely in different plants, it is not possible to give exact formulas and the above formulas are therefore illustrative rather than specific.

Usually the padding liquor contains from 1 to 2 oz. of caustic and hydro per gal. plus a small amount of foam-controlling and penetration-assisting agent. The booster box usually contains from ¼ to ½ oz. of caustic and hydro per gal. plus a small amount of reduced dye which compensates for the slight tendency of the dye to bleed out of the padded cloth. Common salt is often added to reduce the tendency of padder dye to bleed into the booster box.

The speed of the cloth through the machine varies from 60 to 160 yd. per min. in different plants.

*Procedure for Dyeing Woven Fabrics by Pad-Pigment Jig-Reduction Method.* Following are typical pad-pigment jig-reduction formulas:

Padder Formulas for 80 x 80 Plain Cloth

| | |
|---|---|
| Vat Khaki 2G Paste | 10.0 oz. per gal. |
| Vat Olive R Paste | 3.5 oz per gal. |
| Vat Brown R Paste | 1.7 oz. per gal. |
| or | |
| Vat Olive R Paste | 12.0 oz. per gal. |
| Vat Brown R Paste | 0.8 oz. per gal. |
| Vat Yellow PR Dbl. Paste | 1.7 oz. per gal. |
| or | |
| Vat Grey RD Paste | 6.64 oz. per gal. |
| Vat Orange GD Paste | 4.78 oz. per gal. |
| Vat Flaming Orange 2R Paste | 0.80 oz. per gal. |

Padder Formulas for Mercerized Broadcloth

| | |
|---|---|
| Vat Khaki 2G | 8.7 oz. per gal. |
| Vat Olive R | 3.6 oz. per gal. |
| Vat Brown R | 1.8 oz. per gal. |
| or | |
| Vat Grey RD Paste | 4.66 oz. per gal. |
| Vat Orange GD Paste | 3.33 oz. per gal. |
| Vat Flaming Orange 2R Paste | 0.70 oz. per gal. |

The cloth is padded through the dye dispersion and the rolls are transferred to the jig and reduced 6 ends in 10 lb. caustic soda and 6 lb. sodium hydrosulphite to 80 gal. The dyeing is then rinsed for 2 to 4 ends in running cold water and is then oxidized for 2 to 4 ends in 2 lb. sodium bichromate and 1 gal. 84% acetic acid to 40 gal. or in 8 oz. Textone and 8 lb. sodium bicarbonate to 40 gal. or 1 qt. 100-volume hydrogen peroxide and 1 gal. 84% acetic acid to 40 gal. The dyeings are rinsed and then aftertreated 6 ends in a gently boiling bath containing 3 lb. soda ash and 3 lb. soap flakes to 100 gal. Rinsing completes the dyeing process.

*Procedure for Dyeing 80 x 80 Fabric by Jig Method.* It is not advisable to dye the mercerized broadcloth on the jig by the reduced method, but the 80 x 80 cloth can be dyed on the jig. The dyebath for a 1,000-yd., 250-lb. roll is prepared with:

| | |
|---|---|
| Caustic soda | 10 lb. |
| Sodium hydrosulphite | 5 lb. |
| Vat Khaki 2G Paste | 16 lb. |
| Vat Olive R Paste | 4 lb. 8 oz. |
| Vat Brown R Paste | 2 lb. 8 oz. |
| Freshly dissolved glue | 2 lb. |
| Soluble pine oil | 3 lb. |

80 gal. at 140°F.

The dye is reduced for 10 min. with the above chemicals in 40 gal. of water and the bath is then made to 80 gal. The dry cloth is entered into the bath and given 6 ends at 140°F., adding 1 lb. of hydrosulphite at the start of the 2nd, 3rd, and 4th ends, and 5 lb. of common salt at the start of the 5th and 6th ends on the jig.

The dyed cloth is then rinsed, oxidized, and soaped, as described for the pad-pigment method.

ANNUAL *knitting section*

# Defects in Military Knit Goods

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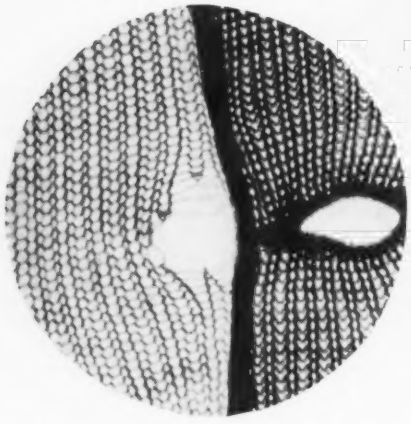
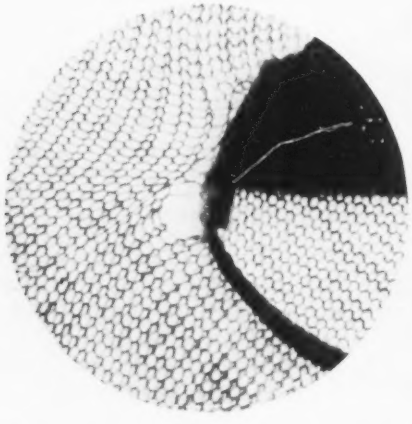
**REJECTIONS OF KNIT GOODS** by the Army was discussed in some detail in the Annual Knitting Section of the April, 1942, issue of TEXTILE WORLD. At that time it was stated that one of the reasons why the Army rejects knit goods is that the mills do not properly inspect the goods before shipment. On garments which are cut and sewn from knitted fabrics such defects as poor cutting, poor sewing, holes, mends, improperly attached parts, etc., are cited as numerous reasons for rejections. Illustrated below are a number of defects which are being found currently in military fabrics. All photographs were furnished by Photo Section, Philadelphia Quartermaster Depot.

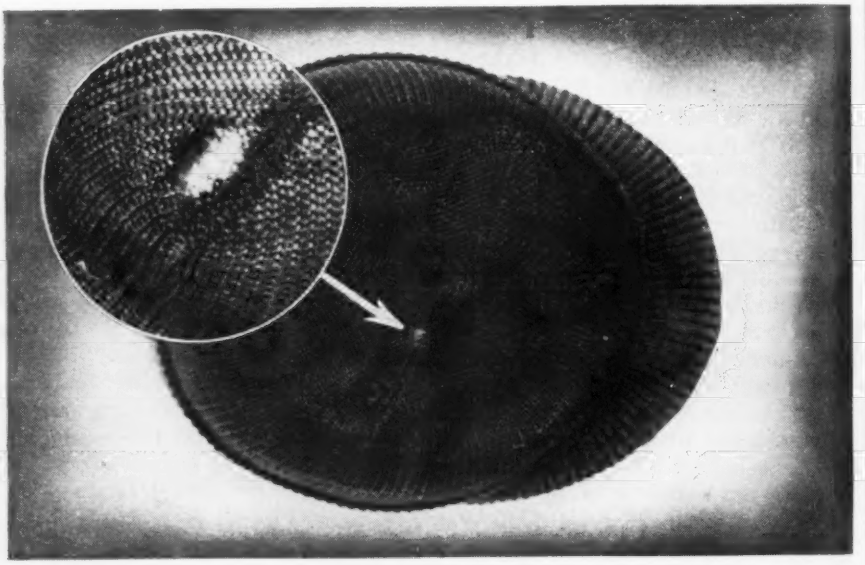
## Knit garment rejections frequently caused in knitting and by carelessness in sewing



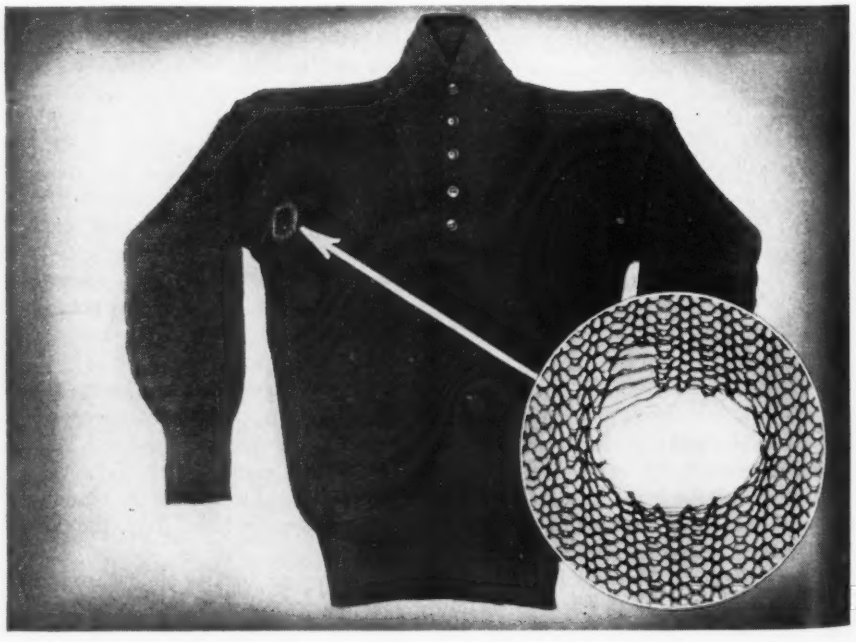
Defect is caused by buttonhole sewing machine running off double fabric and onto the single fabric, causing a hole in the body of the garment, as illustrated.



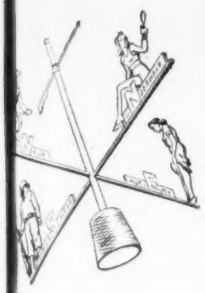
Carelessness of the sewing machine operator is responsible for defects of this nature. Pocket material, in this instance, does not extend full length in the sewing operation.



Imperfection in this knit hat is caused by carelessness in the sewing operation. All of the material is not caught in stitching and the loose thread will unravel.



Hole in the sweater constitutes a defect and is magnified to show its structure. A latch not opening or a bent needle or a weak spot in the yarn is responsible for the hole.



ANNUAL *knitting section*

# Handling Acetate Rayon in Full-Fashioned Mills

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**IN LESS THAN A YEAR,** manufacture of acetate rayon full-fashioned hosiery has emerged from the experimental stage to a point where sale of acetate rayon hosiery yarn by one producer amounts to the equivalent of 400,000 doz. pr. a month, and other producers are supplying additional quantities of acetate rayon yarn to hosiery mills. Among the properties cited for acetate rayon hosiery are that it hugs the ankle, clings to the leg, and does not stretch or bag at the knee; it can be easily washed in lukewarm, sudsy water, and quickly dried; it is not affected by perspiration; it will not elongate in leg or foot; and it resists snagging. Most of the problems originally encountered in throwing acetate rayon yarns, and in knitting, dyeing, and finishing the hosiery have been overcome. As yet, however, these processes are not standardized and the procedures employed differ considerably in different mills.

Generally, high-luster acetate yarns are used for knitting full-fashioned hosiery. Some typical constructions are 75-den., 45-gage, with cotton reinforced foot and Nylon reinforced toe; and 55-den., 51-gage with Nylon reinforced toe. A recent innovation is a "two-thread" construction made from two ends of 30-den. combined to make a 60-den. knitting yarn.

Throwsters and knitting mills with throwing equipment are fast developing new methods for handling acetate hosiery yarns. Some plants are soaking the yarn with solvent-soluble or water-soluble waxes to set the twist and protect the yarns in the throwing and knitting processes. Chief difficulty in uniform sizing is the fact that size producers cannot always supply the same size because they must use substitutes for critical oils or waxes. One yarn producer recommends that, to prevent yarn damage, its yarn be thrown without the use of a flyer. When processing yarns without size, the yarn is twisted dry, steamed to set the twist, and oil is added at the coning operation to protect the yarn in knitting.

Unlike viscose rayon, acetate rayon is run moist on the knitting machine by passing it over a wet felt or through a water trough. Knitting moist improves the stitch and eliminates cloudiness in the fabric. One mill using Celanese brand acetate rayon has found it advantageous to pass the yarn under one rod, rather than the usual three rods for silk, in order to prevent the yarn from becoming too wet; it is probable that this would be advantageous with other brands of acetate rayon.

Some experimenting is required to adjust the knitting machine to the particular acetate yarn used. Knitting machines must be kept clean and in good condition for best results. Acetate yarns can be knitted at the same speed as viscose rayon. However, some mills, when starting on acetate rayon, have found it advisable to reduce the speed of the machines and gradually increase the speed as the operators become more proficient. To produce a good stitch, knit with a minimum amount of tension. Proper coursing is essential; at first the tendency was to have too many courses, which gives a harsh fabric. Mixing lots of acetate rayon must be avoided, as different lots may vary in their physical and dyeing properties.

Preboarding of acetate rayon hosiery sets the stitch and frees the stockings from creases and wrinkles. The time and temperature for preboarding vary slightly, depending on the type of preboarding equipment and mill preferences. A temperature of 200° F. for 2 to 3 min. (with steam pressure of 5 lb.) is considered suitable. One mill sets the temperature at 180° F., which increases to 208° F. after the door of the machine is closed. The stockings are preboarded for 3 min., taken wet from the machine, and hung by the toes in a drying cabinet until dry. Too high a preboarding temperature will damage the yarn, but this mill has not noted any appreciable loss in yarn strength at 208° F. Other mills allow the stocking to dry on the preboarding forms after the steam is shut off.

Stockings made from acetate rayon hug the ankles; do not bag at the knees.

Scouring and dyeing temperatures usually recommended are 160 to 165° F. In many plants, however, dyeing is carried out at 170 to 180° F., and in at least one plant at 200° F. Raising the scouring temperatures, or final boarding temperature, over the preboarding temperature results in a loss of the preboarding effects. Temperature of baths following a hot-bath operation, such as scouring or dyeing, must be reduced gradually by slowly running cold water into the machine while it is running and before the bath is dropped; otherwise wrinkles may be set in the hosiery.

Dye nets and dyeing machines must not be overloaded. Also, not more than one layer of stockings should be packed wet in boxes or allowed to stand in the extractor.

Dyeing is carried out by the one-bath, split-bath, or two-bath method, using regular acetate rayon dyes and suitable dyeing assistants. Direct colors are employed for the cotton reinforcements. In scouring and dyeing, excess alkalinity must be avoided. The same general types of finishes are employed on acetate rayon hosiery as on viscose rayon hosiery. Use of too much gum or softener should be avoided, as an excessive amount may cause difficulty in the final boarding operation and impart an undesirable hand to the fabric. As a rule, a delustering agent is employed in conjunction with the other finishing compounds.

After extracting, the stockings are given a final boarding at a temperature of 170 to 180° F.

ANNUAL *knitting section*

# Training New Knitting Employees

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## Hosiery and underwear mills adopt Training Within Industry Plan and other measures for solving manpower problem.

By HAROLD E. REED
*Assistant Editor, Textile World*

**MANPOWER** constitutes one of the two major problems that the knit goods industry must solve if it is to continue to operate efficiently. Yarn supply is No. 1 problem of the industry. Manpower is problem No. 2, and the shortage of skilled labor steadily is growing more acute. For this reason job operations and methods of training must be streamlined. Too great a period of time is lost in training learners under the old systems followed when large numbers of skilled help were available.

The full-fashioned hosiery industry is perhaps the hardest hit of the various branches. The only claim it can make to war work is that it has several contracts for hosiery for WAACS and WAVES. Those plants located near war production centers, if their wages have not been high and the employment steady, have lost many workers to better-paying war jobs. Mills located in agricultural districts away from industry, especially in the South, have been drawing their supply of labor from the women on the farms. Today the men of the household are drawing higher wages and the women are reluctant to work because sufficient funds are earned.

To a certain extent the same conditions apply to the circular-knit hosiery industry. However, the circular industry is better able to hold its workers because it has numerous war contracts and is able to obtain deferments for some of its essential employees. The same holds true for the circular-knit underwear division.

Prospective employees may be drawn from two classes. First, there are older men; although not so good knitters as young men, they are reliable. Second, women and girls may be trained. They learn rapidly and make good workers. Geographic location of the plant must be considered and a survey made of available supply of labor in each of these groups.

Case histories describing how several different plants of various sizes, have overcome the problem of training labor are offered as a guide to those knitting mills now facing the training problem.

**FULL-FASHIONED INDUSTRY**—Berkshire Knitting Mills is an excellent illustration of the way in which a large full-fashioned hosiery plant may solve its training problems. A training school for learners has always been conducted at Berkshire. Prospective employees have been trained for all jobs, from topping and legging to work about the dyehouse.

Entry of this country into the war has drawn many workers, especially younger men away from the mill. Wyomissing is located close to large defense centers. The steel mills at Bethlehem and the ship yards of Philadelphia are close by, but thanks to good wages and steady work, not many men left for defense jobs. Most were taken by the draft.

Berkshires' war program consists of using men as leggers and footers. As the men holding these positions leave for the armed forces they are replaced by older men. Helpers, who were formerly boys, are now girls. Girls are also being used as cleaners and sweepers and even for cleaning dye vats, and with excellent results.

A slight relaxation in stringent educational requirements of learners is a direct result of the war. Careful selection of prospective employees is made by the employment office, and such consideration as height, eyesight, mental and tempermental requirements of the job are kept in mind during the interview. Toppers and helpers must be at least 5 ft., 4 in. in height, whereas shorter girls can be used in the looping and mending departments. The tallest girls are used in the pairing and packing departments.

The applicant if hired, is sent to the training school, where carefully selected personnel take charge. Training is conducted in different parts of the plant. For example, tables for topping learners are set up to one side of the regular toppers. A number of knitting frames are designated for legger learners, etc.

TWI has proved to be of great assistance at Berkshire. The Training Within Industry division of the War Manpower Commission conducted job training courses. About 80 persons enrolled for the course. A number of key executives along with the staff of the training school made up the classes. The executives reported that whereas the course was very simple, it was of great assistance because it acted as a check. That is, it raised the question, "Are my instructions clear?" Consequently, direct benefit from the course was obtained by key executives, because they are now more careful in giving instructions to their assistants and take greater pains to describe in a clear, concise manner how the work is to be done.

A girl hired as a topper first learns how to crease a heel and then how to top. The four-point program of TWI is followed. First, the girl is put at ease by the instructor so she will be ready to learn. Second, the instructor demonstrates the job and stresses the key points; each step of the topping operation is taken, one at a time, until all points are clear. Third, the girl is permitted to top under guidance of the instructor, who corrects all errors. Fourth, the girl tops without close guidance to gain experience. The instructor, however, keeps close watch to correct all errors. The girl is shown, as a part of her training, how the foot is formed following topping so she has a better understanding of why her operation is of importance.

All tops of learners are inspected carefully and, if perfect, are sent to the footer along with tops produced on the regular production line. In this manner, part of the cost of training is carried by the normal operation processes.

Girls hired as machine helpers have a longer course of training to complete. They first, under the instruction of an instructor, learn how to clean a knitting machine. They may spend one or two weeks on this first operation and before the period is up the superintendent knows whether the student is suited for the work. If not suited, the

employee is transferred to some other work better suited for her temperament. Straightening needles is the next subject taught. Special desks are provided and about seven days under the guidance of a teacher will permit the prospective helper to straighten knitting needles. Next, topping is taught and following comes instruction in the operation and the duties of a helper about a knitting machine. A helper, of normal intelligence, may be trained, using this system, in about 3 to 4 weeks.

An example of how another full-fashioned hosiery mill has attempted to solve its problem of obtaining replacements is illustrated in the following experiences. This plant is of medium size and located in the center of a war production area. Because they have always paid high wages and given steady work, only a few of their workers left for war jobs. Their problem is that of obtaining toppers and seamers.

Prospective employees have, in the past, been obtained through advertising in the newspapers. A definite system of training has been established and as the plant is only of medium size and the number of learners limited, the floor lady does the training. A training system of this nature is of great value as it assures the management that the learner will receive attention and will join the production line in several weeks. Training is expensive and the sooner the learner can become proficient, the less the production record of the room will suffer. Also, it improves the learner's morale, as it permits her to earn increased wages.

A topping learner is given her own head and is shown by the floor lady how to top. Defects are pointed out and her progress carefully watched. After about two weeks of supervised topping the girl is placed on the production line and works in cooperation with a skilled worker until she gains sufficient speed and skill. Seamers are trained in practically the same manner.

A small full-fashioned plant located in the country away from all industry serves as another example. This plant, incidentally, is equipped with automatic machines and consequently does not require toppers. A plentiful supply of farm labor has always existed, and high wages paid and steady work provided by the plant have minimized the turnover in labor. Men and women work well together. Girls in some instances, serve as knitters. All help in this plant was originally drawn from the farms and trained. Although the initial process of training the entire help of a mill is costly and slow, it has, to date, proved profitable because of reliability and an extremely low rate of turnover. Whatever training of new workers required in such a plant may well be conducted by one of the skilled workers or the person in charge of the room.

**CIRCULAR HOSIERY INDUSTRY** — As pointed out above, the manpower problem of the circular hosiery industry is not so serious as that found in the full-fashioned division. Training of machinery operators is much simpler as the machines are not so complicated and most of the machines are of a much coarser gauge. Machine fixers may best be trained, as suggested in the March issue of TEXTILE WORLD, by training those employees that have had some knitting experience or that were formerly knitters.

**UNDERWEAR INDUSTRY** — The underwear knitters, although operating partially on Government contracts, have felt the need of knitters to replace those drafted. Under present conditions it is imperative that a sufficient supply of knitters be available to permit fulfillment of contracts.

It is impossible to find skilled knitters; hence each plant must embark upon its own training program. Apex Knitted Fabrics, Inc., has established such a plan.

This plant is located in a metropolitan district. Although it has found that young men make the best knitting operatives, it is practically impossible to obtain them for training. Young people, under present conditions, take an independent attitude and, if they find the work difficult or not to their taste, leave for the ship yards and other war plants.

As a result, older men are being employed with good success. Some of these men had or still have small businesses of their own and welcome the opportunity to earn good wages, frequently to use them to assist in carrying their enterprise along under existing conditions. Such men are steady workers.

It was found at Apex that men hired as learners did not learn rapidly when placed with an experienced knitter. Sometimes the knitter was not apt at teaching and frequently he was more concerned about his own production to give the required time to the learner. A system was evolved whereby classes of about 5 learners were taught by the night superintendent. The night man had the required time and understood the principles of teaching.

Each learner is shown how to operate the machine and instructed in the defects that such machines produce. A careful check is made to correct all errors made by learners. As the learners advance their wages are increased, thus giving an added incentive. Learners may be trained by this system so they are capable of working in the production line in from two weeks to two months, depending upon the type of machine and the difficulty encountered in operation.

*Photo courtesy of Berkshire Knitting Mills*

Girl learner in full-fashioned hosiery mill is given her own head, instructed in topping, and permitted to practice. Her work should be inspected and run on the footer along with tops from the production line so as to absorb a portion of the training cost.

ANNUAL *knitting section*

# Throwing Rayon for Hosiery

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By C. W. BENDIGO

**SOAKING AND AFTER TREATMENT,** two of the most difficult items to develop in throwing rayon for hosiery, are rapidly becoming standardized. A great deal of improvising has been necessary, and each plant has been obliged to work out its own details, but, in general, they followed definite lines.

The yarn and put-up supplied has often not been in accordance with the wishes of the throwsters and has dictated, to a large degree, the method of processing. When viscose process skeins were supplied, the procedure could follow that formerly used on silk, but for two major changes—different soaking and no doubling. At first, inventories of silk soaking oils were used on rayons, mainly to dispose of them, but it was recognized that they were not entirely suited. These silk oils served as a stop gap until special materials could be found.

One of the first major problems encountered when throwing from skein yarn was that of drying. Few pure silk throwsters had the forced drying equipment necessary or the space and stock needed for air drying. Consequently, three things happened: Some throwsters ran their yarn wet, to the horror of conventional rayon technicians; others decided not to soak their yarns at all and were plagued with broken filaments, ends down, and low maximum turns; the third group, which is now the largest, turned to solvent soaking, and it has been in this field that the most outstanding work has been done.

Solvent soluble waxes were first to be widely accepted and most of the development has been in the direction of refinements for this type of soaking. Prior to the general use of rayon for women's hosiery, waxes had not been used generally for treating this yarn for throwing. Consequently there has been much experimenting and, to a large extent, trial and error.

**SOLVENT SOLUBLE WAXES** initially presented a distinct problem in handling, since the solvents were flammable. They were often objectionable in odor and mildly toxic. This problem has been partially overcome by the adoption of petroleum solvents with higher flash points and so refined as to be virtually odorless. In general, they evaporate more slowly, but are still much faster than water. However, they are unsuited for aftertreating, as described below. There is, at present, a definite trend toward using reduced amounts of waxes. On some types 4%, instead of 10% as formerly, has been found to be best. This percentage is based on the weight of the raw yarn after drying. Another trend has been in the direction of incorporating a lubricating oil with the wax, but this has been more pronounced in the case of water-soluble preparations than in solvent types.

It is now clear that soaked yarn is generally essential for best results in regard to running qualities and the higher twists. But, when yarn is shipped the throwster on cones, soaking is virtually impossible. Some attempts have been made to wind skeins from the cones so they could be soaked but the extra handling deteriorated the quality of the yarn and added greatly to the cost.

In most instances it has been found expedient to mount the cones, as received, on the Duplex, 5B, or other doubler-twister creels and ring twist the single ends. This procedure saves winding costs. The yarn could have its twist increased on conventional silk up-twisters or could be coned directly from the ring-twister bobbins after steaming. At times, however, the cone yarn is wound on up-twister bobbins and thrown. In any event, some sort of aftertreatment is found to be desirable for best knitting.

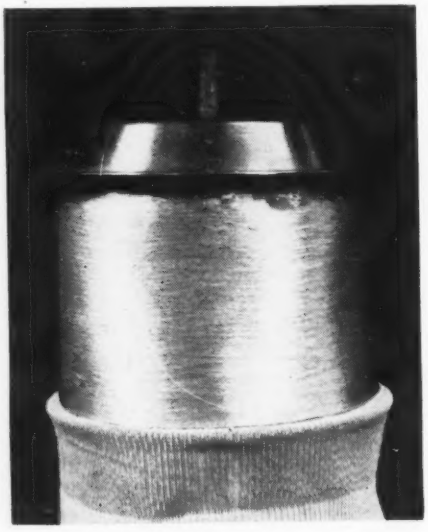


*Photo courtesy of American Viscose Corp.*

Rayon in cake form is being handled with excellent results by throwsters of hosiery yarn.

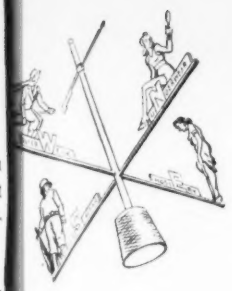
**AFTERTREATMENT** generally takes the form of running the yarn over the usual coning emulsion rolls. Some throwsters also prefer to employ a solvent-soluble wax here, but generally want a highly volatile solvent so that the running thread loses its excess solution before reaching the cone. This type of treatment has not proved entirely satisfactory, since the amount of wax applied is hard to control and proper drying, as just indicated, is difficult to achieve. Consequently, yarn thrown from cones is best when confined to the lower twists.

The rayon package, known as a "cake," which has been of some concern to rayon throwsters producing crepe-twisted yarns for woven fabrics, is being utilized with excellent results in throwing hosiery yarns. A major problem in throwing from rayon cakes has been drying after soaking, but hosiery throwsters who employ solvents and waxes developed for skeins have a minimum of difficulty. Thus the hosiery throwsters are indicating a possible solution for throwsters of crepe yarn for fabric manufacture.

The poundage of rayon cakes being used for hosiery is increasing, since methods developed for skeins can be employed and very little equipment is needed for handling them. Details for processing rayon cakes were given in the January, 1943, issue of TEXTILE WORLD.

All indications point toward more emphasis on soaking when throwing rayon for hosiery. It has been found that complete immersion; that is, conventional soaking, is preferable to dipping or spraying. The reason seems to be that complete immersion for several minutes insures a more uniform application of the wax or wax compound. Spraying, or related methods, tends to cause a filtering out of the wax or compound on the outside of the yarn, especially on cakes. This action is more pronounced with some materials and concentrations than with others, yet it has been found true in each of many tests that complete immersion gave superior results.

Extracting is desirable in soaking and should be controlled so that the percentage of soaking materials remaining is as uniform as possible. It also decreases greatly the drying time.



ANNUAL *knitting section*

# Fixing Hosiery Machines

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## FULL-FASHIONED MACHINES—Chapter XIX—Double-Spindle Reinforced Selvage Attachment

By WALTER A. SIMOND

**THE SELVAGE HEADS** of Reading machines are locked by the upper pawl 1 and the lower pawl 2, Fig. F58, at the end of each movement of the selvage nuts, thus preventing displacement of the selvage heads during the Coulier movement, in kinking the yarn. The latest machines are provided with a mercoid switch which automatically prevents over-travel of the spindle nuts by stopping the machine. Machines which are not thus protected may cause breakage of the selvage attachments if they are incorrectly set after the loss of a set of stockings; from insufficient oiling of the retaining lever 3, so it does not return to its forward feed position; or slippage of the retaining brackets on the upper end of the retaining lever. The breakage usually occurs in the cam lever 4, but sometimes the bracket 5a on the back beam 5 will be broken.

To reset after a breakage, proceed as follows: With the jam nuts free on the lower end of the vertical link rod 6, check or adjust the lever bracket 5a so the cam follower roller aligns with the operating cam 7 on the main camshaft 9; then with the cam roller on the high dwell of the cam, adjust the jam nuts at the bottom end of the link rod 6, and also, at the front end of the reversing lever 11, so the plunger above the lock dial will seat fair in a notch in the dial. In clamping the jam nuts be careful not to cramp the bearings.

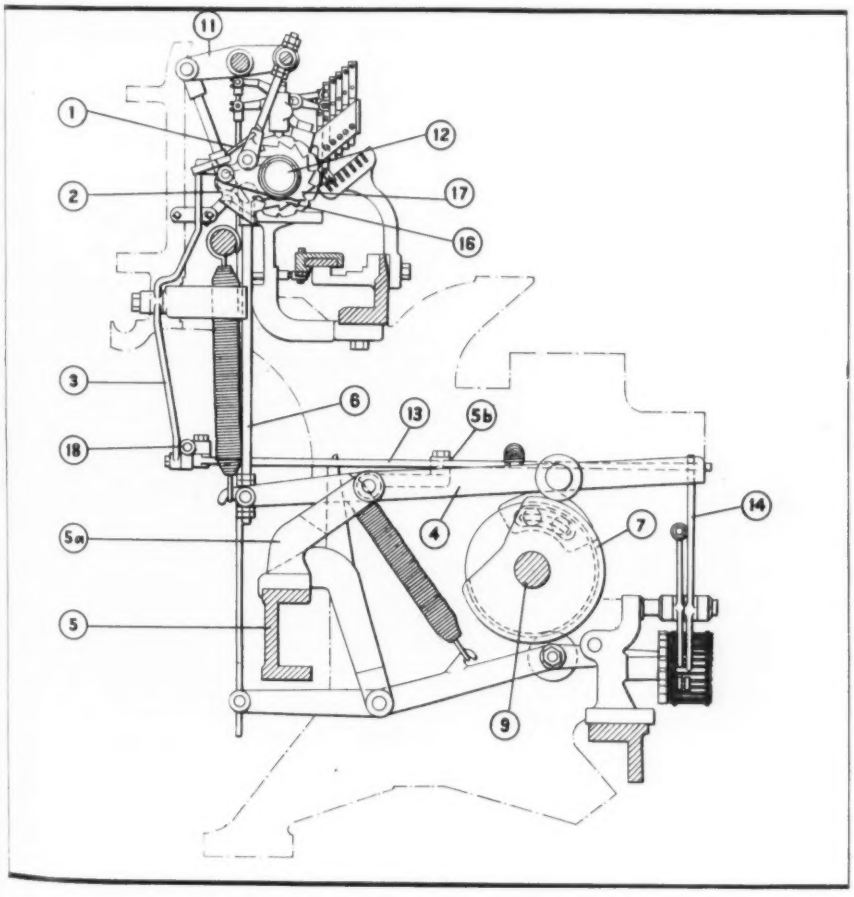



Fig. F58. Resetting selvage attachments.

The pawls 1 and 2 being opposed must not be jammed against each other at the end of the feeding motion. When the nuts of the selvage heads are accidentally jammed so they cannot be reset by hand, assume that less force will be required to release them than was applied when the nuts were jammed, pry out the pawl which caused the jam, and leave the other in operation, then, trip the feed lever 4 and have the knitter pull on the resetting crank while the machine is slowly turned by hand to force spindle 12 out of the jam.

To reset for pawl selection: Check or reset and firmly lock the screw in the side of the gallows frame so the end of the pin in the retaining bracket will clear the flange of pawl 1 by about, but not less than, $\frac{1}{32}$ in., when the retaining lever is idle. Check or adjust the bracket extension 5b so it will allow the hood (not shown) on the front end of the horizontal shifting lever 13 to clear the top end of the chain operated trip lever 14 by approximately $\frac{1}{32}$ in. The trip levers must not touch the hoods when the low chain buttons trip the feed levers.

The shifting lever 13 must be placed and connected to allow the retaining lever 3 to rest normally on the stop screw in the side of the gallows frame. Then set the retaining brackets for pawls 1 and 2 so the pawls will clear the teeth of feed ratchets 16 and 17 by about, but not less than, $\frac{1}{32}$ in. when the pawls make an idle motion. Next, check or adjust the length of the connection 18 between shifting lever 13 and the retaining lever 3 so the retaining bracket pin will pass under the flange of pawl 1 and clear the side of the pawl by about $\frac{1}{16}$ in. in the high-chain-button-operated movement.

In the latest machines, the shifting and retaining levers are held in contact with a coil spring and the adjustments between them are made with a screw and locked with a check nut.

In resetting the selvage heads by hand, be careful not to rack them outside of their correct numbers, as shown by the indicators, as it is possible to incline the mercoid switch to a position where it will not return to its normal lever, and the machine will not start. When this happens, after the selvage heads have been correctly placed, the switch can be returned by hand.

ANNUAL *knitting section*

# Fixing Hosiery Machines

★ ★ ★ ★ ★

## CIRCULAR MACHINES —Chapter XX—Transfer Points and Pattern Jacks

By JULIAN W. HUGHES

**APPLICATION OF THE ELASTIC LAY-IN DEVICE** to circular hosiery machines set up to knit half-hose complete has, to a certain extent, dwarfed the importance of ring transfer, so necessary when transferring the ribbed portion to the knitting machine by hand. However, hand transfer has not passed entirely out of the picture. Some knitters prefer to apply the elastic lay-in attachment to a ribber and transfer the top to the needles of the knitting machine with the ring transfer, as formerly. Hence, the points of these ring transfers must be kept in good condition.

The pattern jack of circular hosiery machines designed to produce fancy half-hose can frequently be the source of trouble. On some machines, particularly those equipped for float-stitch patterning and needle-reverse plaiting, the needles are manipulated by jacks with a number of butts. These butts are the medium by which selector points on a drum, often termed a "trick wheel," controls the raising of the needles. When the pattern chain indicates the raising of a particular jack, a butt that has a portion of it clipped out is brought into action so that a corresponding point or finger on the trick wheel passes through the space without interfering with its normal operation. Therefore, it is very important that the butt is clipped out carefully and evenly so as not to leave projections.

*Caring For Transfer Points*—Transfer points are subject to rough handling at times, especially if a knitter has toppers to do this tedious work and the transfer rings are passed back and forth between the machines and topper's tables. Steps must be taken to keep the points from becoming burred and the edges nicked.

The points on transfer rings sometimes become rough without being perceptible to the naked eye. In such cases an occasional loop of the fabric may become frayed, or hang to the point sufficiently to cause a drop-stitch when transferring the top to the needles. To avoid this have extra transfer rings handy so the points on all rings may be polished at regular intervals by the fixers. The abrasive best suited for this is crocus cloth, and the polishing motion should always be towards the points; never circumferentially. Crocus in the form of a cord is better than cloth since it tends to polish in the grooves of the points as well as the edges.

Rust must be guarded against with respect to transfer points. If the points are not used for some time and are left exposed to the atmosphere, moisture caused by perspiration from the hands or atmospheric condensation from a sudden change in room temperature will leave deposits of rust on the smooth surface of the points. This, of course, would be a hindrance more than a help to speedy topping. The tendency of transfer points to rust when left exposed over the week-end or stored away can be prevented by two methods of treatment:

First, the points can be protected by a coating of oil to exclude moisture; and secondly, they may be covered with some insulating and absorbent material. In the first case, a very simple method consists of cutting bands about 1½ in. wide from ribbed tops, saturating them in machine oil, and putting them around the points of the transfer ring. In the second case, a simple and efficient cover for transfer points is a cup-shaped device that rests on the ring and on the inside of the cover is a strip of felt against which the points press.

*Clipping Butts of Jacks*—Stepped patterns on ribbers for knitting fancy tops, as well as hose machines such as the float-stitch and needle-reverse plating for knitting fancy half-hose, are frequently controlled by clipping out one of a group of butts on a series of pattern jacks. A butt from each pattern jack of the series is clipped out so as to conform with the pattern to be knitted. For example: there are pattern jacks under every needle, and it is desired to produce 25 continuous steps on the fabric. Each jack will have 25 butts, so the first butt on the jack under the needle where the pattern effect is to begin is clipped out. The second butt on the next jack is clipped out, then the third butt on the next jack, and so on until the 25 steps are completed. Since these pattern jacks are made of steel, it is very easy to leave some metal when clipping these butts hurriedly.

Sometimes a set of jacks will be placed in the cylinder and the various butts clipped out to effect the pattern. When the machine is started up it will be found that the plating is not clean. Perhaps it will be ragged and some stitches will be plated or floated that were not intended. Cases have been known where the machine plated raggedly at the start; then after it had run for several hours it would plate normally. Often this can be traced to the pattern man failing to clip or knock out all the butt, as illustrated in Fig. C50. In other words, enough of the butt is left to be acted on by the selector finger. After the machine has been running for some time the fragment of the butt may wear, bend or break off, permitting the selector finger to pass and the machine to plate normally.

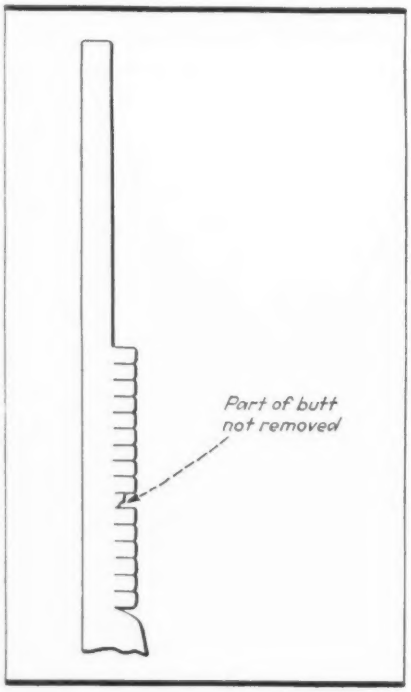



Fig. C50. Jack with a portion of butt not removed. This ragged portion of butt may be sufficient in length for the selector fingers to strike it.

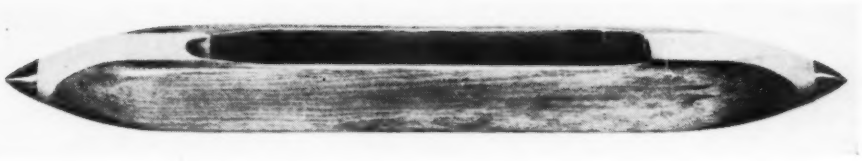
# TEXTILE EQUIPMENT NEWS

## Squeeze Roll Extractor

A squeeze roll type of extractor designed for obtaining continuous hydro-extraction at high speeds, has been developed by Riggs and Lombard, Lowell, Mass. This unit may be used on woven or knitted fabrics and lends itself readily to range operation.

Squeeze rolls are operated with compressed air, which is fed into a pipe at the middle of the machine and thence distributed to both sides. Thus the pressure of the rolls from side to side is automatically and permanently equalized. An important characteristic of this extractor is that its efficiency is not affected by high speeds. Massive construction and extra weight assure long life. Top roll bearings are free floating to eliminate binding and provide uniform extracting from side to side.

The machine is usually furnished with a hand controlled operating valve for raising and lowering the rolls, and a reduction valve for maintaining a constant, uniform pressure on the cylinders. Rolls are rubber covered, top and bottom, and the rubber is adapted in thickness and composition to the type of work being done. In instances where a supply of compressed air is not available, the machine is provided with a small automatic, motor driven, air compressor.



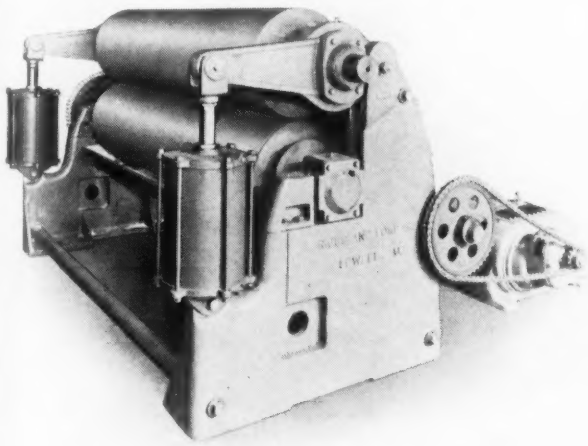
Laminated shuttle; center section retouched to show laminations which are difficult to detect in real shuttle (Draper).

## Laminated Shuttle

Development of a laminated dogwood shuttle is announced by Draper Corp., Hopedale, Mass. Originally brought out to meet an emergency due to steady decline in supply of dogwood blocks of the right size for making shuttles, the new laminated shuttle is said to be just as good as dogwood shuttles now in use, and may prove even better. For producing the new shuttles, the Draper research department worked out a method of uniting small pieces of dogwood by means of a permanent joint which is stronger than the wood itself. This is achieved by joining the pieces with a special adhesive under high pressure. In announcing the new laminated shuttle, Draper Corp. states that the development is offered to all mills and to all shuttle makers without reservation in the hope that it will help the textile industry in its war effort.

## New Shipping Case For Roll Fabrics

A new system of packing finished Nylon fabrics for parachutes has been



Pneumatic type squeeze roll extractor (Riggs and Lombard)

*Photo courtesy White Studio*

Packing case for shipping Nylon parachute fabric developed by Martax

developed by Martex Print Works, Inc., Clifton, N. J.

The packing case is of wood, but cardboard slots are placed at the ends of the case, as illustrated. The roll gudgeons slide into the slots and hold the finished roll of cloth firmly in place. With this system of packing the rolls are prevented from rubbing against the box or each other, protecting them from damage.

The system developed and patented by Martex, has won the commendation of the Army Air Corps officials. In the interest of the war effort it is being made available, free of charge, to other textile firms who wish to use it for delivery of government orders.

## High-Frequency Drying Equipment

Development of high-frequency electrostatic heating and drying equipment for industrial use has been announced recently by the Thermex Division, Girdler Corp., Louisville, Ky. Thermex high-frequency apparatus is already being employed in several industries and is believed to have a number of potential applications in drying, curing, and ageing of textiles. In principle, high-frequency heating consists of converting electricity into a form which will cause the molecules of a substance to distort and rub together, thus setting up friction which results in heat.

A power flow diagram of a Thermex unit is shown in the accompanying sketch. This consists of a circuit breaker, high-voltage transformer, rectifier tubes, high-frequency tubes, and electrodes between which the material to be treated is placed. The equipment is made in various standard sizes, having output capacities from a few B.t.u. to 500,000 B.t.u. per hr.

Among the advantages cited for high-frequency heating are: (1) product is heated uniformly throughout; (2) heating is accomplished at high speed; (3) induced heat may be utilized to bring about chemical reaction; (4) results may be reproduced without variation; (5) application of heat can be stopped instantly, thus avoiding danger of damage to product from overheating.

Among suggested applications of Thermex high-frequency electrostatic heating are in manufacture of felt; drying of cotton, wool, etc.; and in special finishing operations which require application of heat at relatively high temperatures under controlled conditions.

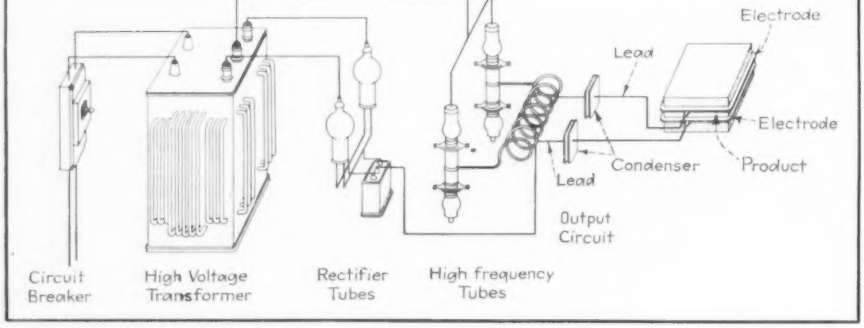
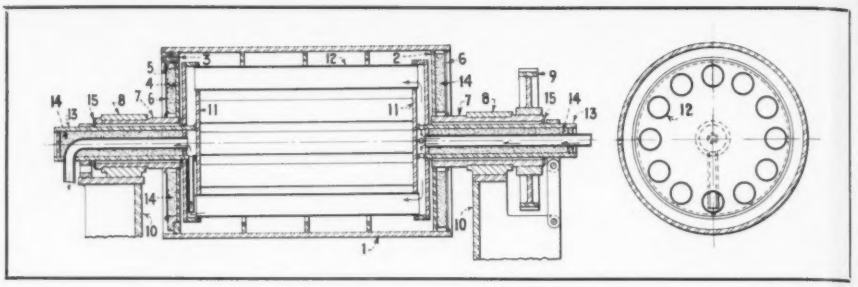



Diagram of high-frequency electrostatic heating unit (Girdler)

## Welded-Steel Drying Cylinder

For his description of an indirectly heated welded-steel drying cylinder, F. A. Helin, chief designer, Bagley & Sewall Co., Watertown, N. Y., received one of the prizes awarded by the James F. Lincoln Arc Welding Foundation in its recent $200,000 Industrial Progress Award Program for reports of advances and improvements made by the application of arc welding in design, fabrication, construction, and maintenance. The following description of the safety-economy drying cylinder is abstracted from Mr. Helin's prize-winning paper.

The two principal component parts of the drying cylinder are: (1) the revolving outer shell, composed of a cylindrical shell, heads, and hollow journals; and (2) the stationary heating unit or a battery made up of several tubes, end chambers, and trunnions. The accompanying drawing illustrates the construction of a drying cylinder adaptable for small or medium-size dryers. The construction of a drying cylinder having a comparatively large diameter is the same in principle, the difference being only in the design of heads to reduce the weight and volume of steam chambers. The drying cylinders are constructed of steel, arc welded all the way through. The syphon method is used to carry away the condensation.



Welded-steel drying cylinder (Helin).

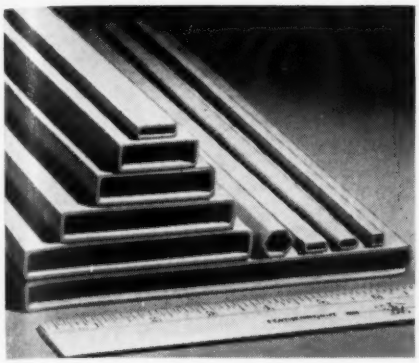
In the drawing 1 is the cylinder shell; 2, back end plate; 3, front end ring; 4, front end plate; 5, front companion ring; 6, cover plates; 7, journals; 8, bearings; 9, drive gear; 10, machine frames; 11, steam chambers; 12, radiator tubes; 13, trunnions; 14, insulant; 15, air seals.

Advantages of the safety economy drying cylinder include the following: (1) The outer shell does not carry any pressure; consequently, it can be made much lighter than ordinary cast-iron cylinder. The lighter weight of the revolving part of the dryer makes it more economical from the standpoint of reduced bearing loading and consequent reduced power consumption. (2) Total elimination of all steam joints results in steam and power savings and reduced maintenance costs. (3) The possibility of an explosion is totally absent. (4) Condensation is removed efficiently.

Due to war conditions, the safety-economy cylinder is not being manufactured at present, but a patent covering its construction has been applied for.

## Paper Tubes

Tubes of paper in sizes as small as ⅜ in. square inside, and as large as 4 in. square inside, with a tolerance as close as 0.002 in., are being produced by Paramount Paper Tube Co., Fort Wayne, Ind. These paper tubes can be



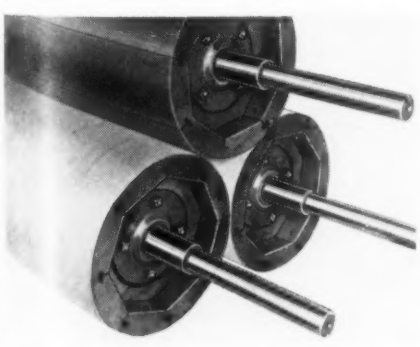
Paper tubes available in various sizes (Paramount).

supplied in high dielectric Kraft, fish paper, red rope, acetate or combination wound—in square, round, or rectangular shapes and in continuous lengths. Some tubes have square corners and straight side walls and are suitable for forming bolts of cloth.

## Wood Stave Rolls

Light weight, low cost wood rolls have been developed by Rodney Hunt Machine Co., Orange, Mass., to meet special requirements of the textile industry.

These rolls of improved construction may be obtained covered with a spiral wound webbing, as shown on the two lower rolls of the photograph, to provide greater traction. To save weight and reduce cost, the usual cast iron spiders are replaced with a series of wood heads. These, in turn, are anchored securely to the through shaft by means of unique construction which employs a special flange designed for light weight but of great strength. For light duty carrier roll uses this type of wood drum construction is supplied in most any diameter from 12 in. and greater.



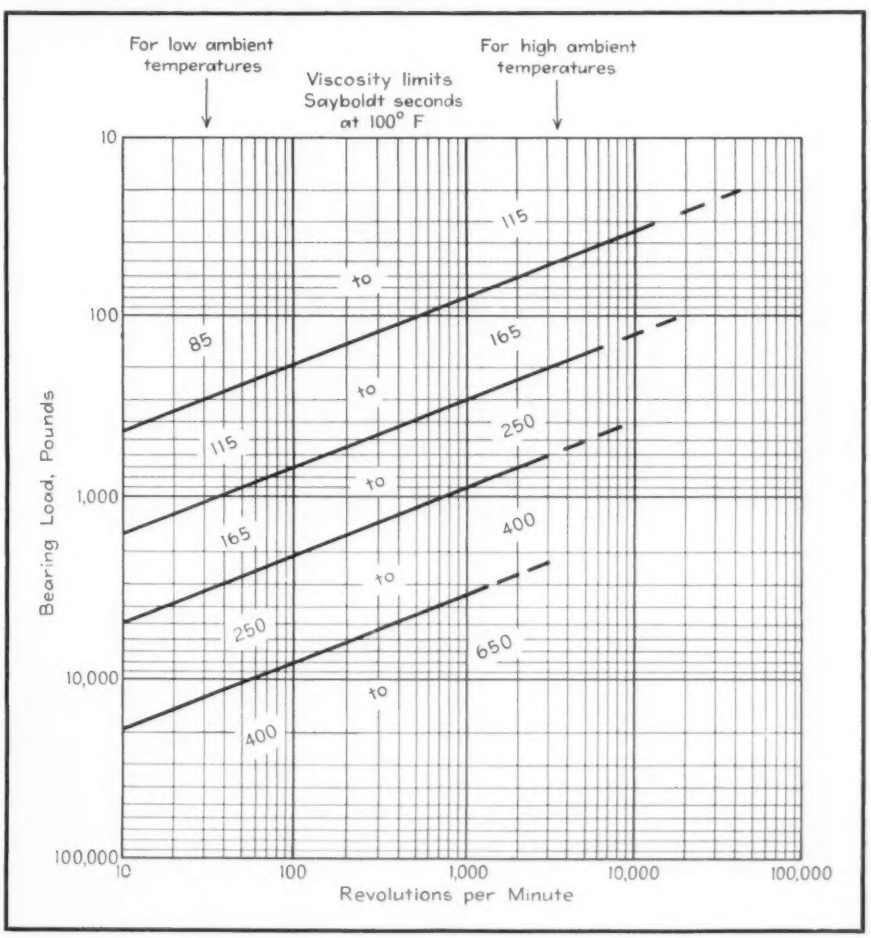
Wooden stave-type rolls (Rodney Hunt)

# Mill Maintenance Section

## More Production From Present Electrical Equipment

Recommendations for effecting immediate savings of critical materials in selection, application, and use of electrical equipment, and at the same time getting more production from present equipment, are contained in a booklet issued recently by Westinghouse Electric & Mfg. Co. Following is an abstract of those recommendations for increasing production of present generators, transformers, motors, etc. *Generating Equipment*—Operate present equipment at full capacity. Investigate ways of increasing its effective capacity by addition of accessory equipment, rewinding, rebuilding, etc. Examine possibility of lowering the ambient temperature of medium in which generator is operating. Determine where output of large hydrogen-cooled generators can be safely increased by raising hydrogen pressure. Don't overturbine; use smallest standard prime mover that will deliver the required power and match the generator output. *Transformers*—Load them to the gills; load by copper temperature, rather than by nameplate rating. Loading by copper temperature increases useable kva. by 25 to 40%. Increase effective transformer capacity by employing air-

### OIL VISCOSITIES TO USE UNDER VARIOUS BEARING LOADS




ANNULAR BEARING ENGINEER'S COMMITTEE prepared the above chart as a guide in determining the correct viscosity oil to use, Saybolt seconds at 100°F., for lubricating anti-friction bearings with oil under different bearing loads, r.p.m., and temperatures. This chart should be of value in oiling textile mill equipment.

blast cooling or forced-oil circulation, or both. Relocate transformers to secure maximum benefits of capacity and positive protection. This can be accomplished by moving completely self-protecting transformers to locations where lightning is most severe and load is subject to extreme fluctuations, and by shifting conventional transformers to areas where lightning hazards are negligible and load is comparatively steady.

*Feeder Voltage Regulators*—Investigate possibility of increasing loading of regulators by use of blower equipment; in some instances output can be increased approximately 25%. Don't attempt to increase capacity by forced-oil circulation or water spray. Under many operating conditions it is practical to overload regulators at some sacrifice in life; overloads should not be applied without a study of various limitations, such as oil expansion, capacity of bushings and associated equipment including cables, reactors, breakers, disconnect switches, and current transformers.

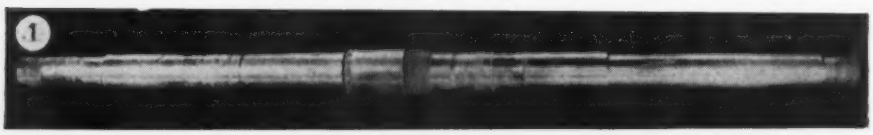
*Motors*—Take advantage of overload service factors built into motors, plus temperature conditions more favorable than those for which the motor was designed; for example, use a 5-hp., a.c. motor for a 6¼-hp. load instead of a 7½-hp. motor. Take advantage of favorable voltage and frequency conditions; for example, on existing systems make suitable arrangements for maintaining full rated voltage at loaded terminals. Take advantage of favorable operating conditions which permit use of standard, open, sleeve-bearing motors in place of fan-cooled or splash-proof motors. Take advantage of of conditions permitting use of higher speed motors; i.e., use motors of the highest standard speed permitted by the application for which a satisfactory belt, chain drive, etc. can be obtained. In d.c. adjustable-speed motors, employ the highest base speed possible; for example, by using 500/1500r.p.m. instead of 400/1600 r.p.m., you usually save a frame size. Avoid use of multi-speed motors when single-speed, single-winding motors will do the job. Always use a.c. motors wherever possible, especially for constant-speed drives.

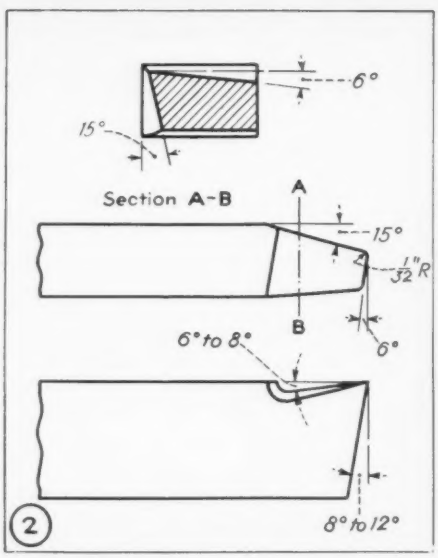
*Power Factor Correction*—Investigate how you can get more production from your present power supply by installing capacitors.

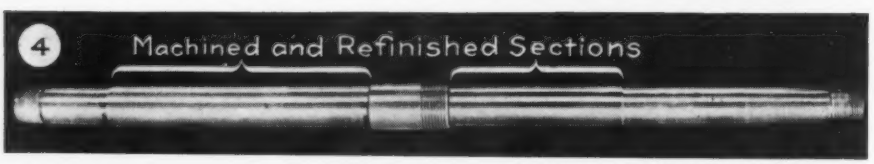
# Reconditioning Worn Pump Shafts

**REPLACING worn pump shafts and rods with new parts requires high priority ratings and long and expensive delays. A convenient method of renewing a worn shaft or rod is simply to machine off the worn section and refinish the surface, according to an article in *Process Industries Quarterly*, published by International Nickel Co., Inc.**

**In general, this method may be used successfully on any shaft or rod made of Monel. One precaution must be observed—shafts that show a tendency to "whip" should not be machined.**






*All photos credit of International Nickel Co., Inc.*

1. Before—the worn shaft shows evidence of wear and ordinarily would be replaced. However, under existing conditions it is advisable to recondition the shaft.

2. No special cutting tool is needed—a high speed tool is preferable, but a plain carbon steel tool bit is satisfactory for this limited amount of machining. In machining Monel or "K" Monel the best results can be obtained by grinding the tool, as shown by the sketch.

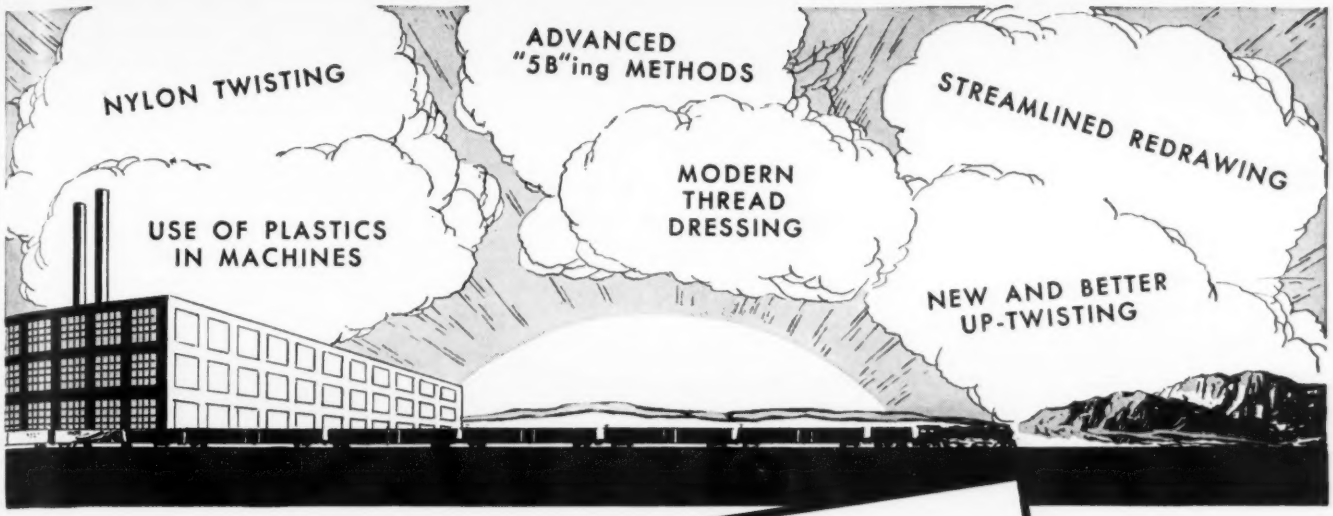
3. Take a rough and finishing cut, leaving enough metal for filing and lapping to final size.. No lubricant is needed on the surface—machining should be done dry. When refinishing rods, the length of taper on the steam end can be reduced to suit the refinishing dimension but the original length of taper on the liquid end should be retained to to support bronze pistons. For machining Monel, a speed of 55-60 ft. per min. with .005 in. feed can be used; for "K" Monel, use a speed of 35 ft. per min. with .005 in. feed.

4. File the machined surface with a light pressure, using a single cut, smooth file. Lap the filed surface with No. 0 then No. 00 emery cloth. Carefully clean the finished surface to remove any particles of emery. Make new glands, followers or bushings and use larger size packing to fit the smaller diameter of the reconditioned rod or shaft. The finished job—with proper installation and pump operation, should give trouble-free service until after the war.

# Give Your Fire Hose Proper Care

Keep your fire hose in good condition, according to the simple maintenance rules outlined on a wall card published by Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.

Fire hose should be tested once or twice a year, preferably in the spring, with either a hand or power pump to not more than 200 lb. per sq. in. for




# A BRIGHTER TEXTILE TOMORROW will come from ATWOOD WAR PRODUCTION TODAY

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double jacket and not more than 100 lb. for single jacket hose.

Do not permit hose to stay on fire trucks when muddy and dirty, as there are often injurious chemicals present. All lengths that pass inspection should be connected to a hydrant, have a valve or cap put on the opposite end, and the hose filled with water, and allow to stand under hydrant pressure for a while. Then drain, and coil hose and submerge in a tank of water to thoroughly soften dirt. After removing hose, lay on clean surface, wet hose well with hand hose, and scrub jacket clean with plenty of soap, if necessary, and water, using brush or broom. Then rinse thoroughly with hand hose and drain.

The heavy cotton cover of fire hose absorbs a considerable amount of water and, after washing, should be dried at full length under normal temperatures in a tower or on a rack. Be particular to drain and dry well in freezing weather.

It is necessary for air to circulate through the hose to prevent mold, and all folding should be done loosely with this thought in mind. Every three months, the hose should be re-folded, making the bends come at different places. Do not attempt to fold or re-fold hose when it contains water which has frozen.

At least one complete set of hose should be on hand at all times. This will permit proper testing, cleaning, and drying after each run.

All fire hose lasts materially longer when laid aside for rest periods at regular intervals. This procedure is strongly recommended by the manufacturers. Do not leave hose in apparatus for long periods of time without being used. Hang it up in a tower or on a rack, and replace with other hose. A stair tower makes an excellent place to hang hose as a well of several feet exists between the stair flights.

## Oil is Poison to Rubber

Although it is as absurd to oil V-belts as it would be to oil tires as both depend on frictional contact, nevertheless this sometimes is done, according to a statement appearing in "Plain Facts on Wartime Care of Rubber V-Belts," published by Allis-Chalmers Mfg. Co. Not only does this reduce a V-Belt's coefficient of friction, but the oil actually attacks its rubber. Similarly, belt dressings never should be applied to V-belts. If oil, grease or other harmful substances collect on V-belts, remove them with water or naphtha.

# New Dyes and Chemicals

## Water-Repellent Compound

For rendering fabrics and other materials water-repellent, a radically new process and compound have been announced by the Electronics Department, General Electric Co., 570 Lexington Ave., New York. The process and compound were developed by Dr. Dinton I. Patnode, of the G. E. Research Laboratory. The compound, known as Dri-Film, is a clear liquid composed of various chemicals which vaporize at a temperature below 212° F. The method of application is to expose the fabrics or other material to be treated to the vapors for a few minutes in a closed cabinet. They are then removed from the cabinet and, if necessary, exposed to ammonia vapor to neutralize any acids which may have collected during the treatment.

The effect of the treatment is to form an extremely thin water-repellent film on the surface of the material. Used by G. E. for treating ceramic insulators for radio equipment, Dri-Film has proved about nine times more effective than the wax previously employed, and its results are permanent.

## Protective Coating

A transparent resin, known as Resi-Flex, for protecting metal, wood, fabrics, and other materials under various conditions of exposure is being marketed by David C. Brown Co., 17532 Wisconsin Ave., Detroit, Mich. The formula may be adjusted to accent one or more of the following properties: dielectric strength; resistance to alkalis, acids, alcohols, gasoline, and oils; flexibility; and scratch resistance. It is stated by the manufacturer that the coating will not crack if the article covered is bent through 140°; that a 4H pencil point will not cut through the coating; that it is non-toxic. Resi-Flex is made in air-drying and baking types, which may be brushed or sprayed. Materials employed in the manufacture of Resi-Flex require priority ratings of A-I-J or higher.

# New Publications

## Swatch Book

STAPLE COTTON FABRICS. Swatch Book, Second Edition, 1943; by John Hoye, Thurston Cutting Corp., 40 Worth St., New York; $18.50.

This comprehensive collection of over 250 swatches of gray, converted, and mill-finished fabrics is a supplementary book to Mr. Hoye's reference book, "Staple Cotton Fabrics," recently published by McGraw-Hill Book Co., following serialization in TEXTILE WORLD. The swatches included a sample of each type of basic fabric used in the cotton converting trade and a sample of each class of mill finish. The gray and/or finished construction of each sample is given. Swatches are arranged according to fabric types or by the trades which use them. The samples are cross-indexed with the page number in "Staple Cotton Fabrics," where complete information regarding yarns employed, constructions, and uses can be found. The swatch book and the reference book together comprise an up-to-date library on staple cotton fabrics which will be invaluable to textile mill men, converters, wholesalers, textile schools, and others.

## True or False?

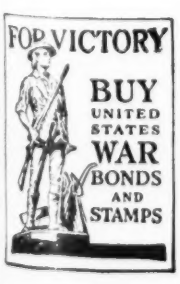
WARTIME SUPERVISION OF WORKERS: The Human Factor in production for Executives and Foremen, by Richard S. Schultz; Harper Bros., New York; $2.25.

Production supervisors now recognize the "man factor in management" as contrasted to the old viewpoint of "getting out production." This indicates a heightening social intelligence and a new dignity acquired by supervisors of today. This is indicated by foremen-recognition of such factors as keeping workers interested, work conditions, ac-

# TEXTILES—*Marching to War*

Eleven million men in uniform—the best clothed army in the world—fighting on a dozen fronts, from the arctic to the tropics—the biggest textile job in history.

SONOCO has an important role in this tremendous undertaking—which they consider as a direct war job—and to which they are devoting all their energies to supply textile paper carriers—enough and on time.




SONOCO MAKES *EVERYTHING* IN *PAPER CARRIERS*

## SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY

cident prevention, systematic instruction, better use of skills, and matching the worker to the job. Some women are considered equal, or superior, to men as supervisors, and the author believes that proper selection and equal training and experience on the job will fit many more women for the supervisory jobs. Passing along the know-how, streamlined supervision, and foremen qualifications and selection are covered interestingly.

Foremen, supervisors or top executives who wish to check their own knowledge of human relations should write TRUE or FALSE to each statement on the check list of 100 leading human problems before reading the full discussion of each problem. Four hundred executives in various industries participated in the original survey made by the author, and is a fairly representative cross section of the foremen of the nation. In the full discussion, the author tells if the statement is TRUE or FALSE and gives the percentage of executives that agree or disagree with him. The book should prove useful for foremen conferences, and to check upon and improve the factual knowledge of human problems of production executives of all grades.

Personnel men and mill superintendents may find in this book the answer to many difficulties. The style and presentation of the material are suited to use by all grades of plant executives.

## A Consumer Guide in Textiles

THE COMPLETE BOOK OF SEWING, by Constance Talbot; Garden City Publishing Co., New York; 320 pages; $2.95.

Designed as a guide and reference book for the millions of women who are today sewing as a conservation measure, this volume drew prepublication orders of over 25,000 copies. Its information and instructions are clearly and briefly given, and the 750 pictures and diagrams (many in two colors) do a graphic and effective job. Acknowledgement is made to 10 important textile manufacturers, among others, who cooperated in supplying certain of the illustrations.

Constance Talbot, the author, has had many years' experience in various phases of retailing; was 10 years editor of Butterick Fashions and later editor of Simplicity Patterns. She has contributed to the columns of TEXTILE WORLD.

Although basically a book on sewing technique, there is much advice on choice of fabric for a multitude of uses, in clothing and about the home, together with tables of tests and characteristics. It brings between two covers the fabric features which are determining consumer preference and thus offers valuable reference material for fabric stylists and fabric development departments.

## Pre-Shopping News for Women

HOW TO DRESS IN WARTIME, by Winifred Raushenbush; Coward-McCann, Inc., New York; $2.00.

Here is a "really good" wartime buying guide for women's clothes! It combines all the facts and figures most interesting to women with a liberal serving of dash and imagination so that women will read it.

Miss Raushenbush has done a grand job of sifting out the highlight facts from New York, Hollywood and Washington, from stores, garment makers, designers and specifications specialists. She has brought into clear view the story of clothing women war workers and women in service. She takes a realistic approach to getting the best dollar's worth out of wartime clothing purchases.

Splendid as a handbook for wiser buying, it is likewise lively reading for all textile folk who want to know how Mrs. America thinks when she goes in to buy the dwindling supplies of civilian clothing fabrics.

## British Rayon Trade Directory

RAYON & SILK DIRECTORY and Buyers' Guide of Great Britain; Harlequin Press Co., Ltd., Old Colony House, South King St., Manchester 2, England; 21 shillings.

This directory for 1942-43 is the 16th edition and the first since that for 1940-41. Data has been brought up to date and because of wartime developments there are many more changes than usual between issues of such directories. Much useful information is included.

# News of Suppliers

**Proctor & Schwartz,** Philadelphia, has appointed John W. Rinehardt, formerly of the Philadelphia Suburban Newspapers and the Electric Hose & Rubber Co., to take the post of advertising manager for the duration during the absence of Stanley Whiteway with the Armed Services. Mr. Whiteway has been advertising manager for the last seven years.

**Crompton & Knowles Loom Works,** Worcester, Mass., has elected Frederic W. Howe, Jr., southern manager, to be a vice-president of the company. He has been southern manager at Charlotte, for the last eight years, lately handling an administrative position connected with war work at company headquarters in Worcester.

**Saco-Lowell Shops,** Biddeford, Me. has transferred John L. Graves from the Atlanta territory to the Biddeford plant, where he will be connected with the sub-contract division of war production for the duration. He expects to be returned to Atlanta after the war. In the meantime, the Atlanta office will continue under the direction of Miles A. Comer and H. M. Walsh.

**Quaker Chemical Products Corp.,** Conshohocken, Pa., has made several recent additions to its organization. Tulio Cordero, formerly with United Drug Co. in Boston, has been added to the research laboratory staff, as has Dr. Boris Schwartz, who received his Ph.D in organic chemistry from Rutgers last spring. D. W. Prichard, formerly associated with W. H. & L. D. Betz, of Philadelphia, has joined Quaker's technical sales division.

**Steel Heddle Mfg. Co.,** Philadelphia and elsewhere, has recently acquired J. F. Johnson & Co., manufacturers of precision tools, ordnance gages and special machinery in connection with

S. A. MOFFIT, who has joined Warwick Chemical Co., as reported last month.

# KEEPING *alive* YOUR BELTING HORSEPOWER

**• BARNES BELT DRESSING AND PRESERVATIVE**

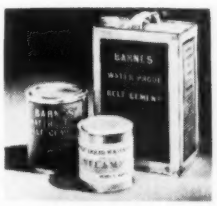
A dried-out belt wastes horsepower—a dried-out belt cracks, slips . . . it is *"dead"* . . . it's not doing its job of transmitting horsepower; and down goes your production. Good dressings and preservatives put back into the belt *the life that was once there,* preserve it against cracking, stiffness, slippage. Barnes Dressings and Barnes Belt Cement and Belt Fasteners are *the very life of belting.* The products of Belting specialists, they preserve, they lubricate, they soften, they strengthen. Keep your Belts ALIVE with Barnes Products and keep up your War production.

**• WIZARD BELT DRESSING STICKS**

Instant remedy for belt slippage. Should be applied sparingly while belt is running. Do not allow to cake on pulleys or on belt.

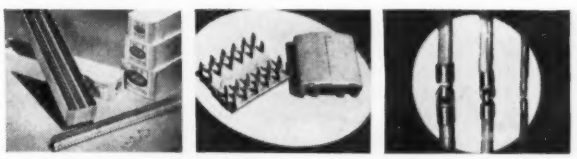
**LIQUID DRESSING.**

Keep the leather in leather belts in the same condition as it was when tanned. Working conditions take from the belt qualities necessary for maximum production and efficiency. Our belt dressing and preservative puts these qualities back into the belt and maintains the original standard of leather. Liquid preservatives and dressings should be applied when belt is to be shut down for at least a few hours. Do not apply when belt is running.




**• BARNES WATER PROOF CEMENT *and* THINNER**

For all leather cementing—lagging pulleys or splicing belts—use a waterproof cement. Easy to handle. Fast sticking. Thoroughly tested. Ready for use from can. Available in air tight one quart to five gallon cans. For pliable and secure laps and plies, waterproof cement is superior to common glues.



**• BELT FASTENERS**

Clipper belt hooks and Talcott belt plates for use on all sizes of flat belts. Quick method of making belts endless. Correct size hooks and plates should be used for the particular width of belt otherwise damage may be done to pulley. Moran round belt couplings for all round belt sizes.

**• BLU-SKIN LACING *(Chrome)***

Lacing is adaptable for all conditions. Is not affected by humidity. It makes a more perfect endless belt—saves wear and tear on pulleys—reduces slippage, giving maximum production.

**HENRY K. BARNES COMPANY • SALEM, MASSACHUSETTS**

BARNES THE *Textile Leather* HOUSE

SINCE 1876

**Where unusual knowledge of Leather is combined with long years of Textile experience**
**APRONS—BELTING • FLAT • ROUND • & ACCESSORIES—STRAPPING**

## RAISING THE "E" PENNANT AT SACO-LOWELL

SACO-LOWELL SHOPS, Biddeford, Maine, received the Army-Navy "E" Award on March 16. Presentation of pennant was by Brig. Gen. Burton O. Lewis, U.S.A., and of the insignia by Capt. Victor D. Herbster, U.S.N. Acceptance of the Award was by James G. Crossley, superintendent of the plant. R. A. Kettley, vice-president of the company was master of ceremonies.

the war effort. Business has increased so that the Johnson organization has not only increased its floor space, but added a large number of skilled workmen.

**General Electric Co.,** Schenectady, N. Y., reports that orders booked in 1942 totaled $2,003,039,023 which is 77% over the previous record total in 1941. Net income was $45,100,000 a decrease of 21% from the 1941 figure of $57,200,000. Taxes totaled $223,700,000 in 1942 against $145,000,000 in 1941. Employees totaled 139,939 and payroll was $382,000,000.

**Textile Machine Works,** Reading, Pa., has been found eligible for the third successive renewal of the Army-Navy "E" award since the first award in July 1942. This gives the company a pennant with three stars. This is the first company in America to have this distinction.

**Oakite Products, Inc.,** New York, held its 2nd War Production Conference last month concurrently in New York, Chicago, Detroit and Memphis. It was directed toward speeding-up production of ordnance material and other essential war supplies. Of special interest to the textile industry were sessions devoted to cleaning techniques and procedures designed to expedite wool scouring, de-oiling rayon, boiling off cotton and de-gumming silk. The conference also considered ways to increase maintenance efficiency, improve mill safety and reduce equipment downtime on various sanitation and maintenance jobs, including steam cleaning full-fashioned hosiery knitting machines, dye-vats and slasher drums; cleaning heddles and loom harness; reclaiming warp spinning rings; safely de-scaling diesel cooling systems; and cleaning machinery and equipment parts by either tank immersion or pressure spray methods before repair and overhaul.

**A. B. Carter, Inc.,** Gastonia, N. C., has added W. S. "Bill" Johnstone to its sales force. He will represent the firm on the Boyce weaver's knotter and travelers of all descriptions in South Carolina and Augusta, Ga. Mr. Johnstone was recently with National Ring Traveler Co.

**Westinghouse Electric & Mfg. Co.,** East Pittsburgh, Pa., has awarded to Andrew H. Phelps, vice-president in charge of purchases and traffic, the Westinghouse Order of Merit for exceptional service to the electrical industry and to his company in wartime. The medal, a silver W on a bronze background, was presented to Mr. Phelps by George H. Bucher, president of Westinghouse, during a ceremony held at the East Pittsburgh Works with 250 company officials and employes present. The award was established in 1935. Mr. Phelps left McGraw-Hill Publishing Co. in 1937 to join Westinghouse.

**Hercules Powder Co.,** Wilmington, Del., opened sales offices in the Statler Bldg., Boston, on April 1, for its cellulose products, naval stores, synthetics, explosives and paper makers' chemicals departments. Homer C. Simmons, New England manager of sales of the Cellulose Products Department, who was at Stoneham, Mass., heads his departmental unit in Boston. Howard C. Bates, in charge of Synthetics Department sales for that territory is now located in the Boston office.

**Armstrong Cork Co.,** Lancaster, Pa., reports net earnings for 1942 of $2,964,384 after normal income and excess profits taxes of $1,902,403. This compares with domestic earnings of $4,241,258 after taxes totalling $3,526,375, in 1941. Both sales and employment reached new peaks during 1942. An expanding volume of munitions business raised domestic sales from $78,619,683 in 1941 to $82,704,879 last year —a gain of 5%. Increased production resulted in the employment of over 14,000 persons in the company's operations in the United States at the close of the year, a gain of 3000 in one year.

**Monsanto Chemical Co.,** St. Louis, Mo., and its American subsidiaries made net earnings in 1942, after taxes and deduction of minority interest, of $5,515,836. Although sales increased

Hemphill Co., Pawtucket, R. I., has set up a Board of War Production Directors, comprising members of labor and management groups, for the purpose of intensifying every activity which will contribute to the war effort by the company and its personnel. One of the first results of the new organization was the development of a plaque shown above, designed after the company's Banner trade mark by one of the company's employees. At a recent rally banner-shaped pins inscribed "Hemphill Company War Worker" were given to all employees pledging full cooperation in the war effort and increased purchase of war bonds.

# The Key to one of Your Post-War Problems

**RE-CONVERSION of textile manufacturing facilities to peace needs; the development of new processes, new products, will bring many problems.**

**Again, free competition will tax the ingenuity of merchandisers in obtaining distribution, acceptance and preference for the amazing new things which have been given birth through the emergency of war.**

**Identification of new fibres correlated with valuable trade names, attractive marking, packaging and display will be vital factors in the new era of competition. Here again pre-war materials may not be suitable.**

**For Identification, Kaumagraph research may have already solved the problem you will face. During this war, from the Kaumagraph laboratory have come many new practical ideas and products for marking war materials. Perhaps your products, new or old, are adaptable to the use of these new Kaumagraph developments. If not, our research department will go to work for you.**

**While these new things of yours are still in the test tube or in the proving ground of war it may pay you to send for a Kaumagraph Identification Man. Incidentally, he may help you improve or economize your present war material marking.**

*Identification Headquarters since 1902*

**KAUMAGRAPH**
Wilmington, Delaware

*Dry Transfers*
*Prestomarks*
*Embossed Seals*
*Lithographed packaging*

***New York Office, 16-22 E. 34th St. · · Representatives in Principal Textile Centers of the World***

MATHIESON ALKALI WORKS gets "E" Award—Lt. Commander George W. Eighmy, U.S.N.R., presenting Army-Navy "E" Award pin to G. W. Dolan, executive vice president of Mathieson Alkali at presentation ceremony in Niagara Falls plant recently.

8½% to $69,146,999, net income after taxes decreased 18%.

**Manhattan Rubber Mfg. Division** of Raybestos-Manhattan, Inc., Passaic, N. J., has acquired an option on the Speer Farm in Clifton, N. J., for Victory Gardens for employees who have not sufficient land at home. If enough interest is shown in the plan, the company will lease the property for one year. Individual plots will be 20x40 ft.

**Westinghouse Electric & Mfg. Co.,** East Pittsburgh, Pa., in its annual report states that orders received in 1942 showed an 85% increase over 1941 to reach a total of $1,079,636,268. Net income for 1942 was $17,366,841, a decrease of 25% from the company's 1941 net income of $23,117,510. The Westinghouse tax bill in 1942 was $71,446,548 compared with $61,537,295 in 1941. The number of employes reached 97,423 at the end of last year, with a payroll for the year amounting to $239,634,071.

**Aralac, Inc.,** Taftville, Conn., has made promotions and additions to its personnel as follows: Leon Charles Lis has been promoted to Director of Quality Control at the Aralac Plant; Edwin H. Hartramft has been promoted to plant superintendent; Howard A. Wade, who has had extensive practical experience in mill operations, has been added to the company's mill service staff.

**Reliance Electric & Engineering Co.,** Cleveland, Ohio, has elected S. B. Taylor, works manager since 1931, to be manufacturing vice-president.

**Devoe & Raynolds Co.,** New York, has appointed Guy C. Phinney as superintendent of the company's brush plant now located in Princeton, Ind. Mr. Phinney has been associated for the last 26 years with T. S. Simms & Co., of Canada.

**Wickwire Spencer Steel Co.,** New York, has appointed W. A. Steele as general superintendent of its Buffalo Works. Mr. Steele succeeds Fred Johnson who is retiring from active duty after more than 20 years with Wickwire at its Buffalo plant.

DR. ALPHONSE PECHUKAS, who has been appointed research director of the Columbia Chemical Division of Pittsburgh (Pa.) Plate Glass Co. He has lately been acting director. Dr. Franklin Strain has been named Assistant Research Director.

**Aluminum Co. of America,** Pittsburgh, as a result of a renegotiation agreement entered into with the Government, has made a new and lower schedule of prices for semi-fabricated aluminum.

**Wiremold Co.,** Hartford, Conn., has appointed J. E. Love as its Pittsburgh district manager to succeed H. C. Moran recently retired. The new district office is located at 502-B Law & Finance Building, Pittsburgh.

**Industrial Sheet Metal Works,** Detroit, has changed its name to Industrial Equipment Corp. One of the company's outstanding developments is the Hydro-Whirl dust collector for which it holds patents.

## SAVES FREIGHT BY BALE COMPRESSION

NEW WOOL BALING METHOD—Compressing the same amount of wool into smaller bales has affected a freight cost reduction of about $3.15 per bale, according to several large western wool shippers. With only four flat-steel bands tensioned and sealed with hand tools, the bales are small enough to permit 110 to be loaded in a car, with resulting saving since minimum carload rates are met. This method of wool baling was developed in co-operation with Acme Steel Co., Chicago.

## Machinery Plants Show War Products

Representative New England textile machinery makers exhibited many of their war products on April 2 at the Hotel Statler, Boston, at a public display sponsored by the Army Ordnance Association and attended by many outstanding military and industrial leaders. Whitin Machine Works, Whitinsville, Mass., featured 20-mm projectiles. Draper Corp., Hopedale, Mass., displayed 75-mm pack howitzer parts, 37-mm shells, airplane equipment and internal grinders. Crompton & Knowles Loom Works, Worcester, was also on the exhibitors' list, being subcontractors for piston grinders and ammunition components. Graton & Knight Co., Worcester, showed revolver holsters, gun cases, belts, and pouches for spare parts of 3.8-in. and 3-in. guns. Atlantic Rayon Corp., Providence, R. I., exhibited a parachute.

# KEEP 'EM SPINNING . . . LONGER

## Regular rebuffing gives Armstrong's Cork Cots three to five service lives!

IF you're using Armstrong's Cork Cots, you know they have a long initial life. You know also that, when these cots do begin to show signs of wear, you can rebuff them . . . make them like new . . . for as little as ½¢ per roll.

Since an Armstrong's Cork Cot can be rebuffed 2 to 4 times, you *should* be getting 3 to 5 full-length service lives from each covering. And you *will* get this greatly extended service if you follow the simple system recommended on the instruction chart entitled "Directions for Installing and Buffing Cork Cots." This procedure helps keep yarn quality up, replacement costs down, and keeps work flowing evenly through the roll shop.

The uniformity of Armstrong's Cork Cots makes this money-saving, time-saving system possible. Since the density of these cots is carefully controlled during manufacture, each cot is identical in quality and durability with every other cot of its type.

Your Armstrong representative will be glad to help check your rebuffing schedule to make sure you are getting maximum service from every roll. If you need one of the instruction charts, write Armstrong Cork Company, Textile Products Section, 8304 Arch Street, Lancaster, Pa.

**ARMSTRONG'S CORK COTS**

ACCOTEX COTS · ACCOTEX APRONS

# FREE FOR THE ASKING

Readers interested in literature reviewed on this page may secure copies by writing to Textile World, 330 West 42nd St., New York, giving their company connection, title of item desired, and date of issue in which it was reviewed.

**The textile laboratory** of Rohm & Haas Co., designed to carry on research, the valuation of existing products, and development and sales service, is described in an article appearing in *The Rohm & Haas Reporter*, February issue, published by this company. The article is well illustrated and shows photographs of tests being made by a Scott tester of inclined plane type, a stiffness tester, a drapemeter and other equipment being used in the laboratory.

**WPB Order P-139** giving AA-2X rating to textile manufacturers for procurement of maintenance, repair and operating supplies, is explained in the December-January-February issue of *Davis & Furber News*, published by Davis & Furber Machine Co. Interpretations of the order should be of assistance to textile men.

**"Spinning Frames as Radiators,"** is the subject of a feature article appearing in the February issue of *Parks' Parables*. This article deals with the equivalent heat output of spinning frames while they are in operation.

**Under floor electrical distribution** in cellular steel Q-floors is discussed in a 48-page manual issued by General Electric Co. The manual includes catalog listings of G.E. Q-floor wiring accessories and fittings and detailed data on layout and installation procedure.

**Better production** through improved methods of handling is discussed in the February issue of *The Swirling Column*, published by American Mono-Rail Co. Photographs are included showing the use of MonoRail equipment used in handling heavy warp beams and also in charging dye kettles with tubes of yarns.

**Several advantages** in the use of fluorescent lighting in textile mills are pointed out in an article entitled "Old Electric Lights Are Miniature Furnaces," in the March issue of *The Howard Way*, published by Howard Bros. Mfg. Co. This article states that textile plants are changing to the new fluorescent tubes, because they double the illumination without increasing the load on the wiring and without extra cost for current.

**"Stretch Control in Rayon Warp Sizing,"** is discussed in the March issue of *Rayon Warp Sizing Specialist*, published by Charles B. Johnson Machine Works. Recommendations are made as to the percentage of warp stretch that should be permitted in rayon warp sizing for viscose, cuprammonium, acetate and spun rayon yarns. Suggestions are also given as to how yarn tension may be reduced during sizing.

**Five bulletins** have recently been issued by Wheelco Instrument Co. describing their complete line of industrial indicating, recording and control thermometers. Bulletin G23-2 discusses the operating principle of Wheelco thermometers and contains information to aid the user in selecting the proper instrument. Bulletin G503-2 covers the recording control thermometer while G603-2 discusses the electronic principle used for effecting control without mechanical contact between measuring and control sections of the instrument. Bulletin G303-2 describes the indicating thermometer and its applications and G403-2 covers the recording thermometer.

**Chain drives,** sprockets and couplings are discussed in Catalog 642 offered by Ramsey Chain Co., Inc. This catalog contains many illustrations of industrial installations of chain drives and much useful information concerning the design and installation of such equipment.

**Insulation** using rubber and metal devices is covered in a bulletin issued by B. F. Goodrich Co., entitled "Vibro-Insulators." These devices are intended to isolate vibration and eliminate shock and noise in heavy machinery and equipment.

**"Steam detergent cleaning,"** is the title of a 24-page booklet offered by Oakite Products, Inc. Among the 27 representative case histories contained in this booklet is one in which a textile mill uses the steam-detergent method to remove coatings of oil, grease and cotton waste from old looms and other machines before repair and reconditioning.

**Synchronous motor control** is discussed in bulletin GEA-1724D, issued by General Electric Co. This system of synchronizing permits a difference of 1 per cent in the feed of a motor near synchronism to be detected easily. Another bulletin, GEA-1755E, issued by the same company, describes photoelectric relays for automatic control. Such relays can prove of assistance to textile mil's, especially those employing conveyor lines and those mills that have encountered problems such as the opening and closing of heavy doors.

**Pneumatic loading** is described in Bulletin B-306 issued by the Foxboro Co. This system utilizes an improved method in which air pressure replaces weights, levers or other mechanical devices to establish the nip or pressure of roll-type machines.

**Alkali products** are discussed in a 30-page Solvay Products Book issued by Solvay Sales Corp. This booklet gives specific information on the various forms and the chemical and physical properties of Solvay products and their uses.

**Maintenance of centrifugal pumps** is covered in a Handbook for Wartime Care of Centrifugal Pumps, published by Allis-Chalmers Mfg. Co. This 27-page handbook contains much information concerning repairs, packing and information concerning loss of heads due to water friction.

**Cork covering** used for roll covering and also synthetic aprons are illustrated and their various properties pointed out in a booklet published by Armstrong Cork Co., entitled, "Modern Textile Roll Coverings."

**Lighting** for increasing plant efficiency is discussed in a leaflet issued by Edwin F. Guth Co. This leaflet covers the use of fluorescent lighting in industry.

**Marking machines** are described in an 8-page folder prepared by Markem Machine Co. This folder describes machines for marking informative designations on varying shaped surfaces such as used in trademarking many textile fabrics and also in marking instructions to consumers.

**Roof ventilators** made of non-critical materials and containing blackout camouflage features for use by textile mills and industrial buildings are covered in Bulletin 217, issued by The Swartwout Co.

**A handbook** covering modern mechanical power transmission for industry has been compiled by Cling-Surface Co. This handbook covers various types of drives, their application and much data concerning belt maintenance which should be of assistance to the master mechanic in any textile mill.

**Condensation** and sweat that forms on metal pipes and fixtures and on walls of slasher rooms and dye houses is discussed in a 32-page booklet entitled, "NoDrip Handbook," which is offered by J. W. Mortell Co. This handbook contains much information on methods of correcting such conditions and contains charts showing the allowable relative humidity permitted before condensation will occur.

**Industrial tachometers** designed for production control are discussed in a catalog, Form 18-12CC, issued by Stewart-Warner Corp. Production control in the textile industry is covered.

**Preserving of belts,** metal, and wire rope is covered in three leaflets offered by Ensign Products Co. Belts may be kept clean, slippage reduced and output increased, according to the information contained.

# Here is how a set of Fullergript Card Brush Refills looks ready to operate

When brush materials are gripped in Steel—like Fullergript—you have no worries about atmospheric temperatures affecting the brush materials or holding method—no tufts to fall out from splitting blocks or cement loosening.

That's why hundreds of flat cards in mills today use Fullergript, and are constantly replacing old tufted construction as fast as possible. These pre-formed spiral all-metal-back strips are easily attached to your present wood cores by following our simple directions.

Study the photograph above. There are longer bristles at each end of brush strip to clean the ends of the flats where there is no card clothing and keep them free of oil and lint. Our Brush construction packs material into a continuous, dense strip with no gaps to permit insufficient cleaning of the flat clothing.

## Cleaner Top Flats Mean Better Carding

**HERE'S THE INSTALLATION RECORD OF SIX MILLS IN SIX STATES. NAMES ON REQUEST.**

| STATE | TRIAL ORDER | MACHINES NOW EQUIPPED WITH FULLERGRIPT |
|---|---|---|
| Maine | 6 sets | 202 machines |
| Georgia | 6 sets | 114 machines |
| Massachusetts | 2 sets | 102 machines |
| South Carolina | 2 sets | 104 machines |
| Alabama | 12 sets | 139 machines |
| Rhode Island | 6 sets | 242 machines |

Over 5000 Cotton Cards are in use today with Fullergript Replaceable Brush Strips. Why not investigate the economy and greater efficiency of these remarkable brushes? We are confident that if you will give them a trial on a few machines, you will want only Fullergript Brushes.

Many Carders started with trial sets of Brush Refills, and results meant building up to full installations over a period of excellent performance. These mills are not located in any one section of the country but spread over many States.

*(Card Room at Manville Jenckes Corporation. Full complement of our Brushes on all cards.)*

**The FULLER BRUSH Company**

**3594 MAIN ST., INDUSTRIAL DIVISION 8C, HARTFORD, CONN.**

THIS IS NO. 38 OF A SERIES ON

# GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

## CONTROL OF TENSION AND PRESSURE FOR PINEAPPLE CONES OF HOSIERY-TWIST RAYON

When winding hosiery-twist rayon yarn on the No. 50 machine with Pineapple Cone Attachment and Roller Bail, the proper control of both tension on the yarn and pressure against the package, will help to produce cones of the desired shape and density.

At the start of winding, the amount of tension and pressure should be enough to build a firm foundation of yarn that will withstand the crushing effect of the outer layers. This tension and pressure will be gradually lessened, as the package diameter increases, through the differential adjustments.

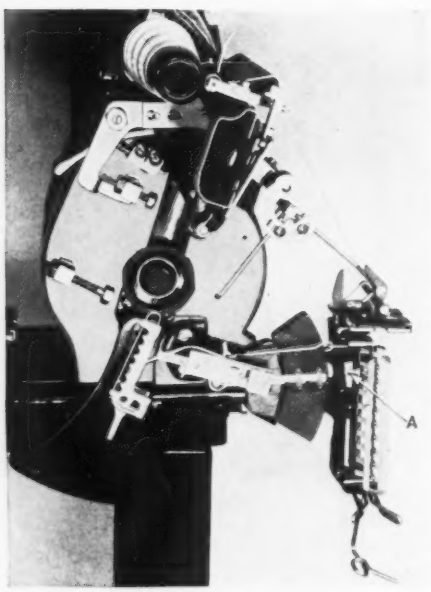



Fig. 1

The amount of applied tension will vary to some extent according to the denier of the yarn, the number of turns of twist, and the type of supply.

During recent months, we have experimented, in our own winding room, with sample lots of viscose rayon hosiery yarns. The following data, obtained from those tests, may be helpful to other mills in determining the proper controls for their conditions:

| *Cone Diameter* | *Yarn Denier* | *Tension Weight* | *Pressure Weights* | *Measured Tension at Start* | *Measured Tension at Finish* |
|---|---|---|---|---|---|
| 4 1/2" | 150 | 50-124X | 50-128CX&128DX | approx. 25 grams | 8-12 grams |
| 4 1/2" | 100 | 50-138ACAX* | 50-128CX&128DX | approx. 22 grams | 7-11 grams |
| 4 1/2" | 75 | 50-138ACAX | 50-128CX&128DX | approx. 18 grams | 6- 9 grams |
| 4 1/2" | 50 | 50-138ACAX | 50-128CX&128DX | approx. 14 grams | 5- 7 grams |

**Part 50-138ACAX is a balance weight positioned on the Differential Tension Lever so as to offset some of the weight of the Lever itself. It is used when winding rayon yarns of 100 denier and finer, which require a lighter tension than is obtainable with the standard weight.*

A little experimenting will determine where the tension weight should be positioned on the Differential Tension Lever, but it is not necessary to wind a full cone in order to find out the applied tension at the finishing diameter. First, the tensometer is used to check the initial tension with the Traverse Frame Back and Roller Bail in position against the empty cone (Fig. 1); then the Traverse Frame Back is pulled away from the cone to approximately the same position it would be in for cone of maximum diameter (Fig. 2), and the tension is checked again.

It is important to remember that excessive tension on the yarn should be reduced by changing the tension weight, not by adjusting the Tension Stop (A) on the Anti-Wear Tension. The purpose of this Stop is to keep the movable grid from passing too far through the fingers of the stationary grid. It should be set—with the yarn running at the start of winding—so that it *almost* touches the finger on the movable grid. It should never actually touch for fear of destroying the differential feature; if it should touch, the release of tension through the Differential Tension Lever would not take effect until after a considerable portion of the package had been wound.

The position of the Differential Pressure Connecting Rod in the Differential Pressure Adjuster may vary according to the diameter of the full cone. For a cone with 4 1/2" maximum diameter, the recommended position for the connecting Rod is in the 5th hole from the top. If the maximum diameter is less than 4 1/2", it may be necessary to locate the Rod in the 6th or 7th hole from the top in order to obtain sufficient release of tension.

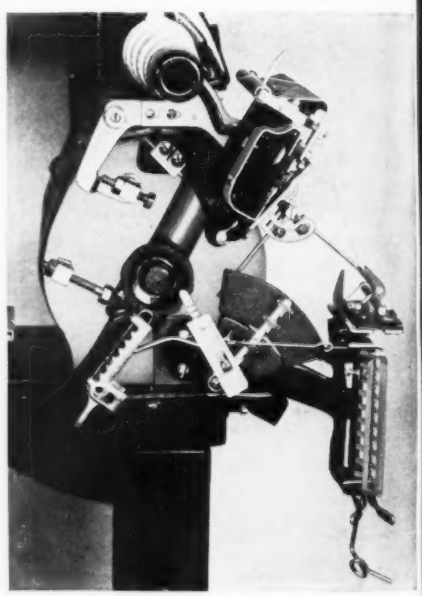


Fig. 2

### Other Rayon Yarns

For acetate, cuprammonium and similar rayon yarns, the same tension and pressure weights are used. However, somewhat less tension is desirable at the start of a new cone, so the position of the weight on the Tension Lever should be adjusted accordingly.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43-GMW-38

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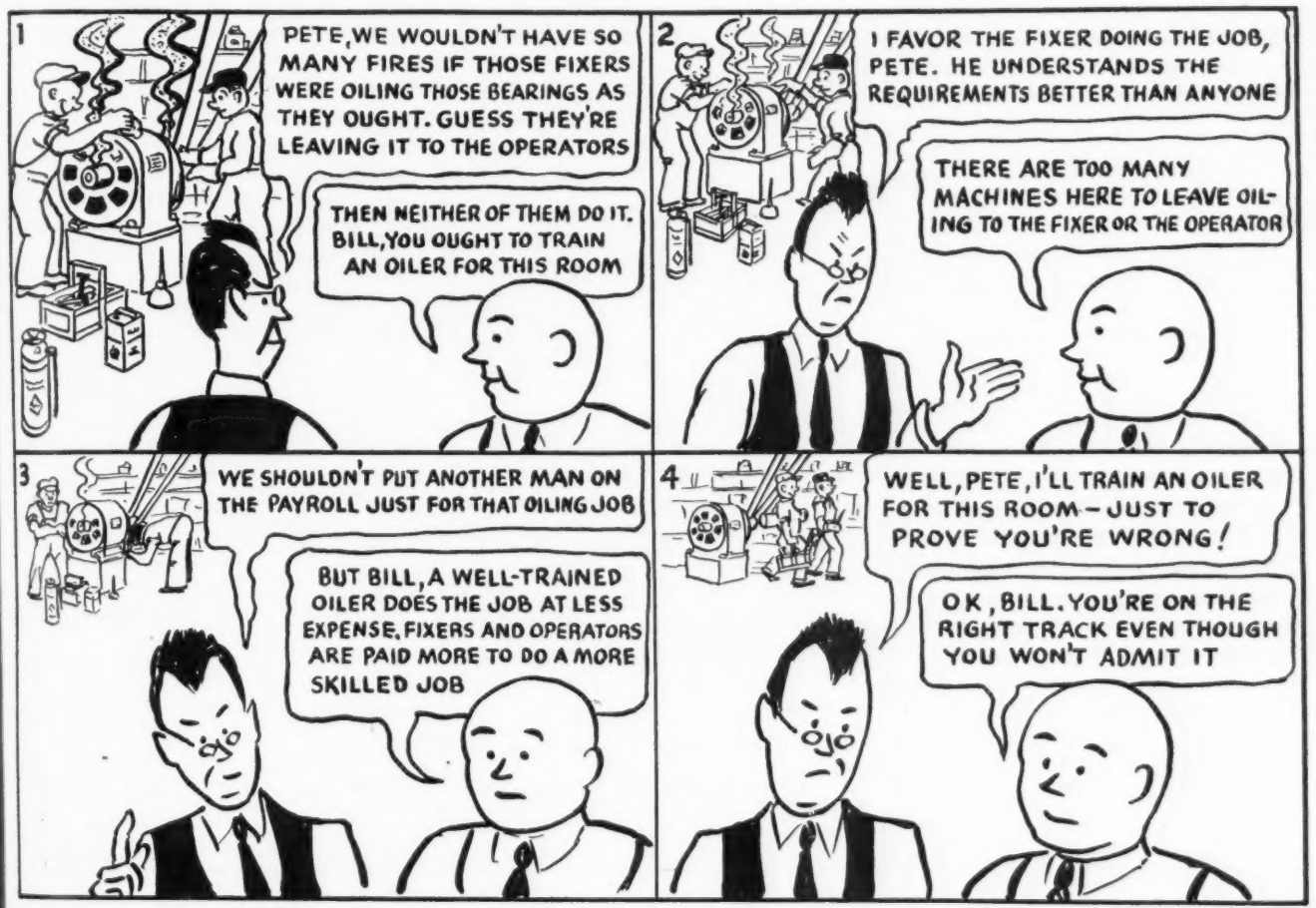
# THE OVERSEERS' CORNER

**PETE AND BILL** — Who Should Oil Machinery?


1
PETE, WE WOULDN'T HAVE SO MANY FIRES IF THOSE FIXERS WERE OILING THOSE BEARINGS AS THEY OUGHT. GUESS THEY'RE LEAVING IT TO THE OPERATORS
THEN NEITHER OF THEM DO IT. BILL, YOU OUGHT TO TRAIN AN OILER FOR THIS ROOM
2
I FAVOR THE FIXER DOING THE JOB, PETE. HE UNDERSTANDS THE REQUIREMENTS BETTER THAN ANYONE
THERE ARE TOO MANY MACHINES HERE TO LEAVE OILING TO THE FIXER OR THE OPERATOR
3
WE SHOULDN'T PUT ANOTHER MAN ON THE PAYROLL JUST FOR THAT OILING JOB
BUT BILL, A WELL-TRAINED OILER DOES THE JOB AT LESS EXPENSE. FIXERS AND OPERATORS ARE PAID MORE TO DO A MORE SKILLED JOB
4
WELL, PETE, I'LL TRAIN AN OILER FOR THIS ROOM — JUST TO PROVE YOU'RE WRONG!
OK, BILL. YOU'RE ON THE RIGHT TRACK EVEN THOUGH YOU WON'T ADMIT IT

**Should fixers, operators, or oilers take care of lubrication?**

# Letters from Readers

## Score for Suggestion Box

**"Suggestion Box in the Mill"**
**(Pete and Bill, Jan., 1943)**

Editor, Overseers' Corner:

In all due respect to Pete and Bill—Hank as well—I shall insist that a "Suggestion Box in the Mill" is in no wise out of order. In any plant, as in any business enterprise there should be the utmost co-operation at all times to keep the gears running smoothly. Meetings should be held at frequent intervals for discussions so that perplexities that often develop may be worked out, knotty problems discussed pro and con for amicable, satisfactory adjustment for the betterment of production in the mill, and that a better feeling of brotherly love may be with employer and employee.

The more ideas that are weighed and discussed, the better the unity prevalent in the plant.

So, by all means lets have meetings for discussions with a happy get-together feeling always manifested. They will aid wonderfully, I assure you.

DELMER T. WEBB
(*Sergent, Ky.*)

## Suggestion Boxes Needed

**"Suggestion Box in the Mill"**
**(Pete and Bill, Jan., 1943)**

Editor, Overseers' Corner:

Bill claims that employees would submit suggestions regardless of suggestion boxes. Well—would they?

After all isn't it the award, primarily, which is the first interest of the employee, much as we would like to believe otherwise?

Admitted that the majority of the suggestions are worthless—and Bill

CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing material on these pages or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you—contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42nd St., New York.

finds only one once in awhile, which is of benefit to the company, could you say he was wasting time? When things go askew in the finishing room, and Bill is floundering around trying first one thing and then another in an attempt to remedy the situation, would you say that he was wasting his time then?

Anything, whether formal or informal, which will increase a person's interest in his work and perhaps benefit the company is not wasting Bill's time.

Calvin Coolidge once said that everything that could be done by the government had been done for textile mills, and that if textiles were to go ahead then it was up to them to help themselves. Compared to other lines of industry have we progressed much since Coolidge? J. R. W. (*N. Y.*)

## Real Guy Doesn't Expect a Gift

**"Xmas Presents from the Workers" Pete & Bill, Dec., 1942**

Editor, Overseers' Corner:

I do not approve of operatives giving overseers Christmas presents.

An overseer earns more money than his help, and a real guy does not expect any gift. In a lot of cases, the help feels obliged to give toward a present because if he does not give the rest of the crowd will call him "cheap"!

One particular case I know of was where not a single day went by without the help cursing the overseer. Then when Christmas came, some of this same bunch ran around collecting for a present for the overseer.

There's more truth than poetry in the old saying—"Beware of Greeks bearing gifts"!

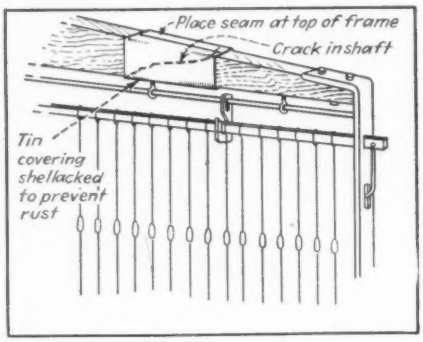
FRANCIS J. MCNEICE,
*Overseer of Dyeing,*
*Anglo-Fabrics, Inc.,*
*Oxford, Mass.*

# Overseers' Practical Helps

## Temporary Harness Shaft Repair

Rather than remove a damaged harness shaft from an active loom, at a time when every minute counts, a temporary repair may be made on the splintered shaft with a piece of metal secured from an empty oil can or hand-soap can.

The repair job requires but a few minutes time. Remove the top and bottom of the can, and cut away all seams. Wash all foreign matter from the surfaces and shellac the tin to prevent it rusting. In placing the tin over the shaft, slide one end between the heddle bar and the shaft, bringing the two ends together at the top of the shaft. Trim off any surplus metal which would prevent a neat seam. Carefully bend the two ends over simultaneously, and roll with the aid of round-nose pliers, using plenty of pressure to form a small neatly rolled lap or seam.




Temporary harness shaft repair.

When time permits, and the harness set has been carried to the twisting room for a remount, the damaged shaft can be removed and an undamaged frame placed in the set. H.E.W. (*Pa.*)

## Replacing Special Bolt

On a certain type of C. & K. loom the pick ball is held on the cam with a special bolt fitting into a bushing, as illustrated in the sketch. These bolts are quite expensive, and priorities may prevent replacements in certain mills.

## Memories of Old Man Carelessness—By Martha Pittenger

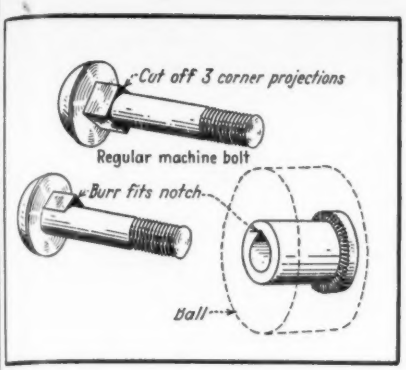
### NO. 4—SPEED

I have many accidents caused from Speed, where employees get in a hurry, so much in a hurry that they don't take time to think. My latest help in this hurrying business is the war, for everyone is trying to speed production, yet—let me tell you a little secret—when I get them in a hurry, I am stopping production.

Here's a page I well remember. One day a man was coming to work in the rain and was a bit late. The pavement was slippery. I told him to run to get there by the time the lights flashed, and he obeyed me. He was making time alright, until his foot slipped, and he fell, causing injuries to his shoulder that made him lose several days work. Yes, Speed and Production had a little party, but I did the most celebrating over Production being slowed down.

Here on another page I see the story of a young doffer. I got behind him and told him he didn't have time to push the box of filling down the alley, that he could get more done if he got a running start, and rode on the box the rest of the way. He was riding along in good fashion and enjoying himself so much that he didn't see a spinner as she came out of the cross-alley. When he saw her it was too late to keep from banging into her; too late to keep her ankle from being hurt; yeah, too late, to save a lost-time accident. So I chuckled to myself, for I had slowed down Production again.

It's difficult to make a person get hurt that is used to moving about quick unless I can get them excited, but, boy! I can really go places when I work on people that move about slow, for when they *do* get in a hurry, something is bound to happen. My biggest laugh comes, when I get employees to run, for I know then that injuries will be greater and perhaps more than one person will get hurt.




Replacing special bolt.

Square head bolts can be used in place of the special bolt. If the head is not sufficiently large enough to prevent the ball coming off the bushing, a large washer can be placed between the bolt head and bushing so it will cover some of the ball's surface, thus preventing the ball from slipping free. However, the side burr on the special-head bolt can be simulated by a regular machine bolt by cutting off three of the four corner projections, as shown in the sketch. Grind off three corner projections from the head end, allowing one to remain. This remaining burr fits into the bushing groove and prevents the bolt from turning as it is tightened into place. G. E. B. (Mass.)

# Hank-Clock Production Constants

## Eliminate many calculations and simplify overseer's work in setting final doff

By Clarence McElroy and Marcus Gross

**Production charts are of great assistance to overseers, as they permit calculations to be made mentally and eliminate long, intricate mathematical calculations which require much time and always offer the possibility of errors. The hand-clock production constant chart which accompanies the following article is one in a series of charts developed by the authors to assist spinning room overseers.**

**A SUPERVISOR** who devotes much of his time to figuring production problems will find little time for anything else. The use of hank-clock production constants eliminates long, drawn-out figuring. Speedy methods, when proved accurate, are essential to the supervisor who recognizes the importance of maintaining production schedules, with a minimum loss of time being devoted to such calculations.

Hank-clock production constants are devised solely as a means of converting pounds wanted in production into hanks wanted on the hank clock. Especially suitable for use in sales-yarn mills, but also valuable in any spinning mill that has hank clocks attached to its spinning frames, is this method of determining the number of hanks of yarn spun on a frame.

A hank clock can best be literally described as a non-producing, recording spindle that accurately records in hanks the production and delivery of yarn by the front roll—per one spindle.

The table listed was developed for 240 spindles; consequently these constants are only applicable to spinning frames of 240-spindle capacity. The actual constant was found by dividing spindles per frame into the yarn count.

Assume that 1000 lb. of 12s yarn is wanted and this is to be run on a 240 spindle frame. Opposite 12 is the constant .05000. Multiplying .05000 by 1000 will give the number of hanks to run; that is, the hank-clock reading—which, in this instance, will be 50. If the hank clock should read 20 before the run, then the clock should in the final doff read about 70, plus a small additional percentage allowance for ends down, broken tapes, etc. Proof of the above problem is as follows: 12s yarn is equal to 12 hanks to the lb. As 1000 lb. of

## HANK-CLOCK PRODUCTION CONSTANTS

| Yarn | Spindles 240 Constants | Yarn | Spindles 240 Constants | Yarn | Spindles 240 Constants | Yarn | Spindles 240 Constants |
|---|---|---|---|---|---|---|---|
| 1 | .00416 | 26 | .10833 | 51 | .21250 | 76 | .31666 |
| 2 | .00833 | 27 | .11250 | 52 | .21666 | 77 | .32083 |
| 3 | .01250 | 28 | .11666 | 53 | .22083 | 78 | .32500 |
| 4 | .01666 | 29 | .12083 | 54 | .22500 | 79 | .32916 |
| 5 | .02083 | 30 | .12500 | 55 | .22916 | 80 | .33333 |
| 6 | .02500 | 31 | .12916 | 56 | .23333 | 81 | .33750 |
| 7 | .02916 | 32 | .13333 | 57 | .23750 | 82 | .34166 |
| 8 | .03333 | 33 | .13750 | 58 | .24166 | 83 | .34583 |
| 9 | .03750 | 34 | .14166 | 59 | .24583 | 84 | .35000 |
| 10 | .04166 | 35 | .14583 | 60 | .25000 | 85 | .35416 |
| 11 | .04583 | 36 | .15000 | 61 | .25416 | 86 | .35833 |
| 12 | .05000 | 37 | .15416 | 62 | .25833 | 87 | .36250 |
| 13 | .05416 | 38 | .15833 | 63 | .26250 | 88 | .36666 |
| 14 | .05833 | 39 | .16250 | 64 | .26666 | 89 | .37083 |
| 15 | .06250 | 40 | .16666 | 65 | .27083 | 90 | .37500 |
| 16 | .06666 | 41 | .17083 | 66 | .27500 | 91 | .37916 |
| 17 | .07083 | 42 | .17500 | 67 | .27916 | 92 | .38333 |
| 18 | .07500 | 43 | .17916 | 68 | .28333 | 93 | .38750 |
| 19 | .07916 | 44 | .18333 | 69 | .28750 | 94 | .39166 |
| 20 | .08333 | 45 | .18750 | 70 | .29166 | 95 | .39583 |
| 21 | .08750 | 46 | .19166 | 71 | .29583 | 96 | .40000 |
| 22 | .09166 | 47 | .19583 | 72 | .30000 | 97 | .40146 |
| 23 | .09583 | 48 | .20000 | 73 | .30416 | 98 | .40833 |
| 24 | .10000 | 49 | .20416 | 74 | .30833 | 99 | .41250 |
| 25 | .10416 | 50 | .20833 | 75 | .31250 | 100 | .41666 |

yarn is wanted, 12×1000 will equal 12,000 hanks, 12,000÷240 (spindles) = 50 hanks per spindle.

Sub-dividing hanks wanted to more than one spinning frame entails very little effort. All that is necessary is to keep an accurate record of the starting hank clock number and the final number that will indicate that the production run is over. When making a table of hank clock constants similar to the one illustrated, care must be exercised that it conforms to the spindle capacity of the frame. A separate table must be made for all frames having different spindle capacities.

# Producing Worsted Warp Yarns

## Twist for white warp yarns and also gage point for carriage determined by formula

By S. KERSHAW, F.T.I.

**How are you handling your worsted warp yarns? Recently, before the Bradford Textile Society, Mr. Kershaw read a paper setting forth various factors considered essential in the preparation processes used in England in preparing worsted warps. Textile men will be interested in comparing British practice and rules with their present methods of handling worsted warp yarn.**

**ALL WORSTED YARN MILLS** should have physical laboratories, and each lot of wool should be examined for fiber length, quality, and imperfections. The wool for warp tops must not only be shafty, but also sound and elastic.

*Raw Stock*—Top quality is based on fiber diameter; the value of a top is based on quality, length, color, freedom from faults, and the market value of wools. The person judging quality really looks at the fiber fineness, or gauges the mean fiber width. He is expected to recognize minute differences, such as exist between 58s and 60s, etc. Although top buying may have to be done quickly, there is no reason why, after buying, a test should not be carried out to justify the buyer's choice, and for future guidance. The difference between 58s and 60s quality is only 1/1700 in.

When comparing tops of similar quality, briefly, those with the best average length should be used for warp, medium length tops for filling, and short tops for hosiery.

Fineness should also be tested, and the result stated in microns ($\mu$=0.001 millimeter). Fineness of fiber is valuable in itself, and also enables a greater number of fibers to be present in the subsequent yarn, thus promoting softness and pliability.

*Drawing*—Fiber control in the English system of manufacture is obtained by a skilful balance between fiber length, draft, twist and ratch. The experienced man can determine which needs adjusting when work is not satisfactory.

How much twist should be put into warp yarns? Should each lot of yarn be tested for strength, and from the result of this test should the two-fold twist be changed? For a particular quality and count of yarn, it is preferable that the two-fold twist should remain constant. This will call for greater efforts in blending and processing to produce yarns of constant strength without the aid of extra twist. It is good practice to test yarn for strength and allow no more than a 5% variation from a predetermined strength for a given count with the normal twist. The actual twist recommended for white warp yarns is (hanks per lb. × 0.6) + 2. For example, 2/40 yarn will have (20 × 0.6) + 2 = 14 turns per in. The strength test might be taken with 53 wraps of yarn on a 1½-yd. reel, and should have a breaking strength in lb. of 1000 ÷ hanks per lb.

*Warping*—A good warp consists of well-made yarn of the correct counts, quality, condition, number of ends and length, arranged in correct order and density, and wound on to a beam correctly set to receive the warp from the first layer to the last. At least one lease band should separate the alternate threads; the yarn should not be disturbed by tight, slack, or uneven tension.

The importance of creeling is stressed; all threads should be tensioned alike. Cheeses are usually placed on horizontal spindles which should fit easily in brackets in the creel uprights. Empty cheese tubes should not be too small in diameter, as small tubes bend the yarn to their shape, and give it a set when the wound yarn is stored for some time. Empty tubes should have an external diameter of about ⅝ in.

The type of creel used is often determined by the amount of room available. The best creel, from the operative point of view, is the semicircular arc creel, which permits the whole of the cheeses to be in view from the position of the warper who stands by the reeds. The straight creel which may be either single or double sided, is not as convenient from the standpoint of sighting, although, when double sided and swinging from the roof, is extremely useful to the spinner with a limited number of warping mills. In this case one side of the creel is filled up with one count or quality of yarn and the second side with another count or quality, permitting warps of each to be made alternately if desired. This arrangement saves a lot of recreeling and the warper's time.

The V-creel has the advantage of size and capacity, but again sighting is not satisfactory, and lost ends, to be found again when beaming-off, are common.

There are two reeds through which the ends pass on their way to the mill; the first is the leasing reed made with long and short spaced dents. From the leasing reed the threads pass through the contracting or section reed, fixed on the moving carriage in front of the mill, the ends being formed into groups at each dent, corresponding in density to that in which they will afterwards be drawn through the loom reed or sley.

It is generally conceded that only the well-trained warper can produce warps equal in tension throughout. The whole structure of the mill and the working method are against it. If we suppose the first layer of warp on the reel to be the correct length, then the second must be longer by twice the yarn thickness of the first, and the third layer longer still. In addition, the tension on the yarn depends wholly on the skill of the operative, and skill spent on a purely mechanical requirement is not economical. Several devices have been contrived to obviate these difficulties, the most successful taking either of two forms, one a device on the warping mill, causing the warp threads to lie sloping at an angle, the other a method of cheese winding.

The movement to the left by the carriage during section building is determined by the thickness of the yarn, its density in the warp, and the angle which the cones, ramps or chocks make to the staves. The movement will increase with the lower count of yarn, the closeness of the threads in it, and the low angle of cone. In one type of machine the manufacturers give a gage point for a 5-yd. reel as:

$$\frac{16 \times \text{ends per in. in warp}}{\text{Hanks per lb. in yarn}}$$

For finding the size of the change wheel in the gearing, the formula has been proved to give satisfactory results in building straight warps.

# QUESTIONS & ANSWERS

## Finishing Worsteds for Men's Wear

Technical Editor:

A few weeks ago, I sent you an inquiry and I'm very much pleased with your reply. Your suggestions are working out successfully.

Now, I shall appreciate it if you will outline a proper finishing process for the three samples of woolen fabrics for men's wear that I inclose. I should like to know the width of the cloth in the loom and how long I must leave them in the decating machine. (8878)

Sample No. 3 is finished by the same process as previously given for Sample No. 1.

Sample No. 4 is a coarse grade worsted and requires a 20 min. run in the fulling mill to beak up the coarse feel of handle, unless that handle is desired. In such instances finish as sample Nos. 1 and 2 in the first lot. Both fabrics are 66 in. in loom.

Sample No. 5 is an unfinished worsted. The fabric is placed in the loom at 74 in. and fulled to 55 in. by 3½ in. in the head, or per yard. Finish the same as sample No. 3 in first lot through to and including decating. (The finishing of samples Nos. 1, 2 and 3 of the first lot was covered in TEXTILE WORLD, Sept. 1942, p. 131—Editor.)

## Throwing Bemberg Hosiery Yarn

Technical Editor:

I have a problem in hosiery yarn which I would appreciate some help with. At present I am throwing a 75/74 no-twist Bemberg into 40 turns left. I use an Avconit No. 3 soaking of 56% wax and 44% naphtha. In winding I get a slight broken filament condition, but in spinning at 9,800 r.p.m. with a McHale flyer wire No. 8 I get a heavier broken filament condition and also many breaks. I have tried running without flyers but of no avail, the condition is worse. In my winding I have tried a 21 and a 28 wind. This does not seem to help.

I have some further questions I should like answered as a check on my present methods. They are: (1) Is the 56%/44% Avconit too heavy for 50, 65, and 75-den. Bemberg? (2) What wind do you recommend? (3) What size spools? (4) What speed in spinning? (5) Should I use a flyer? (6) Should I use one or two operations? (7) If so in what proportion? (8885)

In general it should be said that in throwing 75/74 no-twist Bemberg, some broken filaments are almost certain to result, but should not be serious on first- or second-quality yarn. We assume that you are familiar with the tendency of Bemberg yarn to cut any substance with which it comes in contact, such as winder guides, flyer wires, or any rods that it might run over. Normally you should not get broken filaments in winding unless you have some rough or cut guides or if you are winding with too much tension. We assume also that you have checked the yarns both before and after soaking to be sure that your broken filament condition is not inherent in the yarn or is not caused in the handling during soaking. No-twist yarn sometimes contains broken filaments that lie parallel and are not observed until the centrifugal force in twisting or until running over some surface causes them to stand out.

A twist of 40 turns is high, and that may be the reason you are using a flyer. However, it is possible to run this number of turns without a flyer, provided your speed is not too high and that you have sufficient width of spindle spacing so that the ballooning yarn does not hit any part of the machine. If, because of factors not evident in your question, a flyer is essential, you might find that a heavier wire will flex less than a No. 8 wire. Heavier wires have been known to give less broken filaments than light wires, such as No. 8. Also note what we have to say on this subject in answer to your specific question No. 5.

In reference to question No. 1, we cannot say that 56%/44% Avconit is too heavy or too light, unless we know how this formula works out in running, since the purpose of the Avconit, as you undoubtedly know, is two-fold; to improve the running quality of the yarn in throwing and knitting, and to hold down the higher twists. If it performs these two functions, and still does not cause any trouble due to stripping off or due to troublesome hardening on the yarn, it should be satisfactory. We have no way of knowing when you use 56%/44% and just how much you retain on the yarn, which also enters into the question of the correct formula. In any event we do not believe the Avconit would normally be responsible for broken filaments.

On question No. 2, it is our opinion for twist as high as you mentioned that not over five wraps to the inch should be attempted. You say you have tried a 21 and a 28 wind; however, we do not know the length spools you use. On question No. 3, if your spool has a traverse of 4 in., a 21 wind is just slightly over the maximum and a 28 wind is too much. There are many spools that you can use; however, the following limitations have been found for crepe twisting: for best results the traverse should not be over 4 in. long, the barrel should not be under 1½ in., and the overhang not be over ½ in.

In reference to question No. 5 we feel that the spindle speed in no event should exceed 9,000 and that best results are obtained at a maximum of about 8,000 to 8,500. The flyer, which you bring up in your question No. 5, enters into the consideration of spindle speed, in that a higher spindle speed is possible without a flyer than with a flyer. In running without a flyer, it is well to watch the distance from the top of the bobbin to the tension device that you employ and, of course, you should check your tension device to be sure that it does not contribute to your broken filaments. Bear in mind that there are at least two other types of flyers you might try if a flyer is essential.

In reference to question No. 6, we believe that only one operation twisting on this yarn should be considered, which also answers your question No. 7.

## Yarns for Weaving Duck

Techincal Editor:

Will you kindly advise us by return mail the correct twist per inch in single and ply for 13/3 ply warp stock for duck: also 12/2 ply filling stock for duck. We are manufacturing No. 12 duck for the Navy and our construction meets the specification, due to the fact that it is better than the minimum demand by the Navy, and plus the fact that the weight checks with their specification; however we are experiencing trouble in the breaking strength, as it varies and is somewhat low. We think this condition is caused by insufficient twist in the stock or yarn. (8891)

The following twists per inch for making cotton duck are suggested by a prominent manufacturer of cotton duck: The singles yarn employed in making the plied yarns for both warp and filling are warp-spun with a twist multiple of 4½. The plied yarns used for the warps have a twist multiple of 4 to 5; and the plied yarns used for the filling have a twist multiple of 2½ to 3. Nothing under ⅞ in. middling cotton should be used for spinning the yarn and 15/16 in. is better.

# The Mill Water-Treatment Plant

## Practical instructions for maintenance of pumps, motors, controls, and feeds

By HUDSON NIX

**THE OPERATOR** of a textile mill water-treatment plant must be something of a chemist, electrician, engineer, mechanic, and plumber. One of his major responsibilities is the proper maintenance of the equipment. No better advice can be given on the efficient and economical operation of pumps, motors, controls, and chemical feeding machine in a water-treatment plant than to say: "Follow the manufacturer's instructions." The great majority of plant operators and superintendents realize that this is good advice, but the writer has found from personal experience, plus observation in many plants and published results of surveys in others, that the advice is not widely followed. Indeed, many plants have been so careless in preserving instruction booklets that the newer members of their operating personnel have never had an opportunity to study the manufacturer's advice about the equipment they operate.

Much of the advice offered by equipment manufacturers is repeated in this article, emphasis on many simple precautions being prompted by their widespread neglect and the serious manner in which plant efficiency is affected and operating costs are increased. In addition, many common rules are amplified in the hope of suggesting necessary adaptions to individual situations and requirements.

Few operators of water-purification plants fail to realize the importance of cleanliness in connection with their analytical and bacteriological work, but it is quite common in many plants for motors, pumps, and chemical feeding equipment to be neglected in this respect. Although this may not affect the efficiency of operation as quickly as neglect in the laboratory, in the long run it is sure to be more costly. Special efforts should be made, therefore, to keep at a minimum the dust and moisture so prevalent in a water-treatment plant. Care should be exercised in handling chemicals, such as lime, alum, soda ash, and activated carbon, as the dust may settle in the windings of electric motors, restrict ventilation, and ultimately cause motor failure by producing excessive temperautres. Steps should be taken to keep down dust in the cleaning of floors; and it is equally important that excessive moisture be guarded against in the vicinity of motors and control equipment.

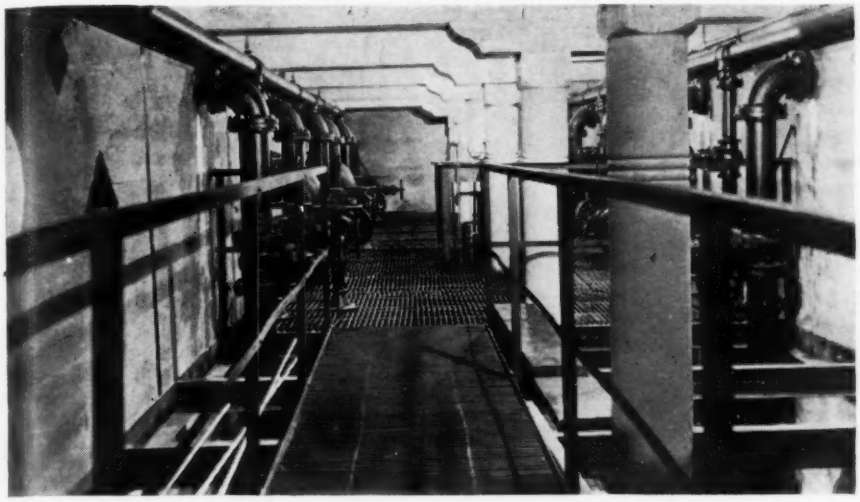
In spite of the precautions taken, it is necessary to clean motors and controls at regular intervals, the frequency of which must be determined by local conditions. Cleaning is usually done with compressed air or large hand bellows, although a vacuum type cleaner is preferable, since it removes dust completely, instead of blowing it from place to place. When compressed air is used, care should be taken to see that the air is completely dry and that the pressure turned on the windings does not exceed 50 lb. Otherwise, damage to windings is likely to occur. After this operation, it is a good maintenance procedure to apply a coat of insulating varnish to windings. This will fill cracks, caused by drying out and high temperatures, that provide lodging places for dust and moisture.

**IN CHECKING OVER MOTOR EQUIPMENT,** one should pay careful attention to the condition of commutators and slip rings, brushes and insulation resistance. Air gaps and brush pressure should be accurately determined and adjusted to the manufacturer's recommendation. Brush pressure cannot be reliably determined without a spring scale, and a feeler gage is necessary in checking air gaps. Hand stones may be used to maintain smooth surfaces on commutators and slip rings, although a power-driven grinder will be required if commutators and slip rings have become badly pitted or grooved. Mica, a common source of trouble on commutator surfaces, can be removed easily with a hack-saw blade. Care should be exercised in this operation to keep slots between commutator bars clean in order to avoid short circuits. Brushes should be removed from their holders at regular intervals and cleaned. Before they are replaced, accumulations of dirt should be wiped from the holders. New brushes should be installed when old ones are worn to within ⅛ in. of the useful brush length.

Plant surveys have shown that from 30 to 50% of motor failures can be traced to bearing trouble. Bearings should be inspected at scheduled intervals and should never feel more than comfortably warm to the bare hands; excess temperatures should prompt a thorough investigation, which may reveal an improper oil level, poor or dirty oil, bearing caps too tight, rough bearing surface, improper leveling, or failure of oil ring to turn with shaft.

It is important to avoid over-filling with oil, especially where the sleeve type of bearing is used. There is a tendency among operators to think that abnormal heat in bearings calls for additional oil. Again, over-filling is common in plants and pumping stations where motors are run for long periods without attention, perhaps due to the erroneous idea that the extra amount of oil provides an extra margin of safety against overheating. Besides being a waste of oil, over-lubrication of sleeve bearings will cause severe damage to motor windings and result in slippery floors, which constitute a hazard to the safety of the employee who operates the motor. In ball or roller bearings, over-lubrication with a grease gun will pack grease too tightly between the moving parts, increase friction, and damage bearings by overheating. Proper lubrication is a simple operation; if not done correctly, it can cause trouble and emergencies that are complicated and expensive.

**PUMPS.** Pump bearings require the same care as those on motors. Aside from the bearings, pump maintenance is largely a matter of proper packing. Many types of packing are on the market, and it is important to select one that fits individual requirements. A common mistake in pump packing is the addition of one new ring to the outside when a leak occurs. Although this will usually stop the leak temporarily, the safest procedure is to repack entirely with new packing. If this is not done, the old packing should be taken out and the new ring placed inside first to replace the ring most severely worn. The danger in continued use of old packing is that it becomes hard and dry and is likely to score or cut sleeves or shaft. Braided or built-



A well-thought-out schedule for inspection and servicing of water-treatment equipment will prevent unnecessary trouble and will reduce the time and expense for proper maintenance.

up packing, impregnated with graphite lubricant, is preferable; flax or plastic packing is likely to damage sleeves and is not recommended. It is important that packing be cut to fit perfectly; otherwise the gland may have to be so tightened that the shaft will be damaged. It is advisable to procure packing rings ready cut, and place them so that the ends of each ring will meet at a different place on the shaft. It is well to leave a steady drip of water coming out at the bottom of the gland to guard against overheating.

Centrifugal pumps in regular service should be inspected internally every six months, at which time oil should be changed and sealing rings replaced if they show signs of wear. Oil or grease in the pump, as well as in motors, should be watched for discoloration, which is a sign of undue wear on bearings. Inspection caps on all bearings should be lifted to see that oil rings start revolving when the motor is started.

Maintenance of switchboard and control apparatus is largely a matter of keeping all parts free from dust, grease, and moisture. Fuses and connections should be kept clean and tight, and contact parts free from pits. Oil tanks in starter boxes should be drained once a year, the oil filtered, and new oil added if necessary to bring to the proper level. It is a good practice to keep a supply of the correct size of fuses in the switchbox.

**CHEMICAL FEEDING EQUIPMENT** including alum, lime, soda ash, carbon feeders, and chlorinators—requires only a minimum of attention. Modern chlorinators are practically trouble-free if the correct temperature is maintained in cold weather. Chlorine cylinders should not be placed near the heat source, as this may result in condensing and clogging when the gas reaches the cooler feed line and chlorinator feeding mechanism. Leaks should be guarded against, because of the danger to operators and metal equipment from escaping fumes. Leaks can easily be located with an ammonia-soaked rag on the end of a stick placed near suspected places in the rubber tubing. A dense white fog will appear where chlorine and ammonia fumes make contact. A roll of rubber tape should be kept handy for temporary repairs.

**DRY FEEDERS** should be lubricated regularly, and chemical dust removed from gears and other moving parts. Feed hoppers should be kept closed tightly, and care should be exercised to avoid spilling chemical on motors, pulleys, gears, and other moving parts when the hopper is filled. If chemical sacks are opened over the hoppers, pieces of string or small bits of sacking are likely to enter the hopper and foul the feeding mechanism or impair coagulation by reducing the chemical dosage.

In most plants a spare feeder is provided for emergencies, or an alternating schedule of operation is followed. This intermittent operation may allow the chemical to cake, scale, or lump in the feeder parts, due to the absorption of moisture. Usually it is advisable to run the feeder dry before it is shut down; when this procedure is not convenient, some means for keeping the chemical dry should be provided.

This can usually be achieved by placing an ordinary electric light bulb inside the hopper, or in a position so that the heat will be near the feeding mechanism. On feeders of the revolving table type, the light should be placed under the table near the adjustable deflecting knives. On vibrating or gravimetric feeders, the feed channel is usually too long for adequate protection with a light bulb, and a small resistance element is recommended. These devices should not be used on carbon feeders, however, as carbon dust is flammable.

Where large storage hoppers are used over the small feed hoppers, arching may give trouble if some method of vibration or agitation is not provided. Usually this problem is solved by the installation of a small vibrator near the bottom of the hopper. However, storage hoppers seldom are used in textile water-treatment plants, as their size does not warrant the extra installation expense. Some hoppers come equipped with screens, which are always desirable. They are easily made in the plant machine shop, and can be placed on top or inside the hopper at the point where the funnel shape begins.

**MAIN SOURCE OF TROUBLE** in operating dry feeders is usually in the delivery of chemical from feeder to the mixing chamber. Clogging in the feed lines is frequent if a high velocity is not maintained and the material is not thoroughly wet and swept away as it falls into the mixing funnel. All bends in the chemical solution lines should have plugged crosses so that they can be rodded out easily. An ejector, installed just below the mixing funnel, will aid in carrying the chemical to the mixing chamber.

Here some of the undissolved chemical may settle to the bottom and be wasted if the flow in the mixing channel is not swift. This is especially likely to happen in the winter when the water is too cold for rapid dissolving. Many of the newer plants are being equipped with a small "flash" mixer at the point where chemicals enter the mixing chamber.

This mixer produces a short, violent agitation which insures a thorough solution of the coagulants before the water enters the slow coagulating mixers. Considerable savings in chemicals are effected in plants equipped with the mixers or other mechanical agitators used in addition to the usual baffle type of mixing channel.

The outstanding weakness in most maintenance programs is the failure to establish a definite routine for servicing, checking, and testing each piece of equipment and making a complete record of this work. A well-thought-out schedule, strictly adhered to, will prevent a great deal of unnecessary trouble and will reduce the time and expense for proper maintenance.

# LOOMFIXERS' MANUAL

## RAYON AND SILK SECTION—Chapter VIII (Cont.)—Protection Motion

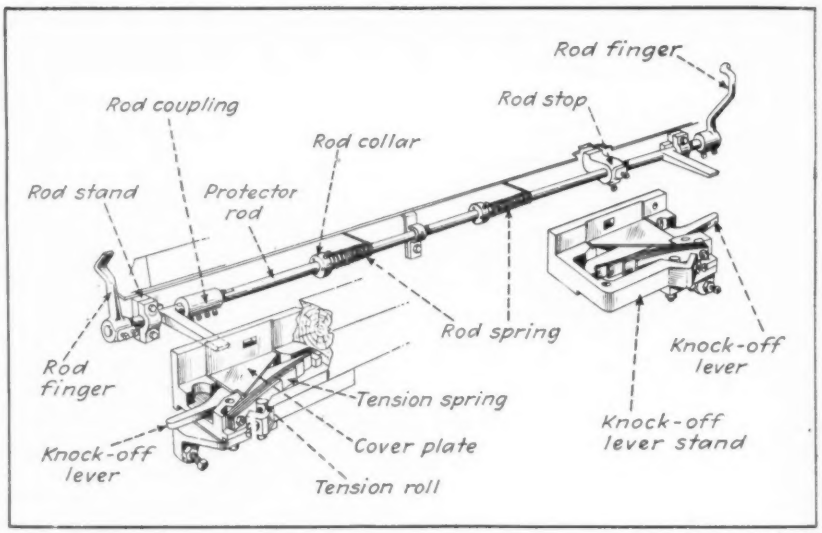
By H. E. WENRICH

**A PROTECTOR MOTION** used on the C & K, S-3 loom and on a number of other types, is illustrated in Fig. RS43. Each dog into which the dagger strikes acts individually upon the protection as a separate unit, but still retains the advantages of working together as a unit. This action helps materially in reducing trouble, for if one end should fail to function properly the other end will protect, thus saving the cloth from being seriously damaged.

The protector rod coupling is keyed to the rod sections and prevents the sections from turning separately and changing position with each other, but at the same time allows the rod ends to be separated for removing the rod stop, rod collar, or rod spring if either one is broken or damaged. Setscrews keep the coupling in position. Some looms have rod couplings somewhat similar to that just described but the couplings are not keyed in position, having holes drilled through the rod sections and setscrews projecting through the rod which are screwed into place through the coupling side to the opposite side. This latter type is not as satisfactory because the rod is weakened by having the holes drilled through it.

Adjust the protector rod stop by placing a shuttle in the shuttle box so that the rod is turned down in the running position and will prevent a bang-off. Set the stop so it fits in the position shown in Fig. RS43 with the tip against the under part of the lay beam. Remove the shuttle from the box and place it in the opposite box, testing the position of the rod stop once more. If the setting should prove too tight against the lay beam, reset the stop. There should be a slight freedom to the rod to prevent binding when the shuttles are in the boxes.

Heavily tensioned rod springs cause considerable wear to the rod fingers. These fingers are bent in such a shape to allow the box binders to slip over the bend of the finger without binding the boxes. If the bend becomes sharp from wear, the finger should be removed and smoothed to its original shape on a fine emery wheel. Should one finger be positioned correctly, but the other finger set too far back from the box binder, the finger can be reset by means of the two setscrews that hold the fingers to the rod. The setscrews frequently cut holes into rods that have had considerable wear and prevents positioning of the finger to the desired position. The finger can be removed and bent slightly, or with care, the finger can be bent while on the rod with a wrench if the fixer is careful.




Crompton & Knowles

**Fig. RS43. Protection motion as employed on C & K, S-3 rayon looms.**

With a knock-off lever of the type shown in Fig. RS43, the lever is held in position by the tension spring that also acts as a shock absorber during a bang-off. When the dagger strikes into the lever, the lever should be set so it will knock off the braking and shipping motions before the spring has been forced into its rearmost position. An adjusting screw on the tension roll controls the active power required to avoid parts breakage or damage to the loom during the bang-off. The spring can be adjusted accordingly.

The dagger points, Fig. RS44, can point up or down according to the type of loom and whether the mounting is of type A or type B. In type A mounting the rod is moved downward to avoid banging-off and is raised to position of bang-off by the rod spring. In type B the rod is swung upward to avoid banging-off during running and is forced downward into the knock-off block for the bang-off. In the later type, the means of absorbing the shock is taken care of with a piece of rubber placed between the bunter slide stand and the loom frame.

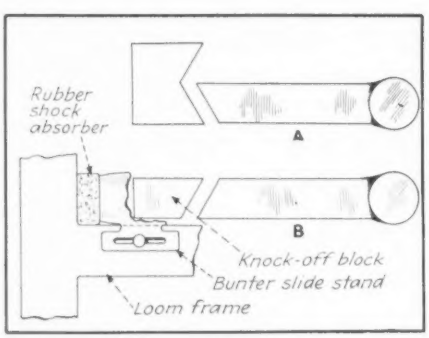



**Fig. RS44. Two methods of mounting daggers.**

# TEN YEARS OF COTTON-TEXTILES

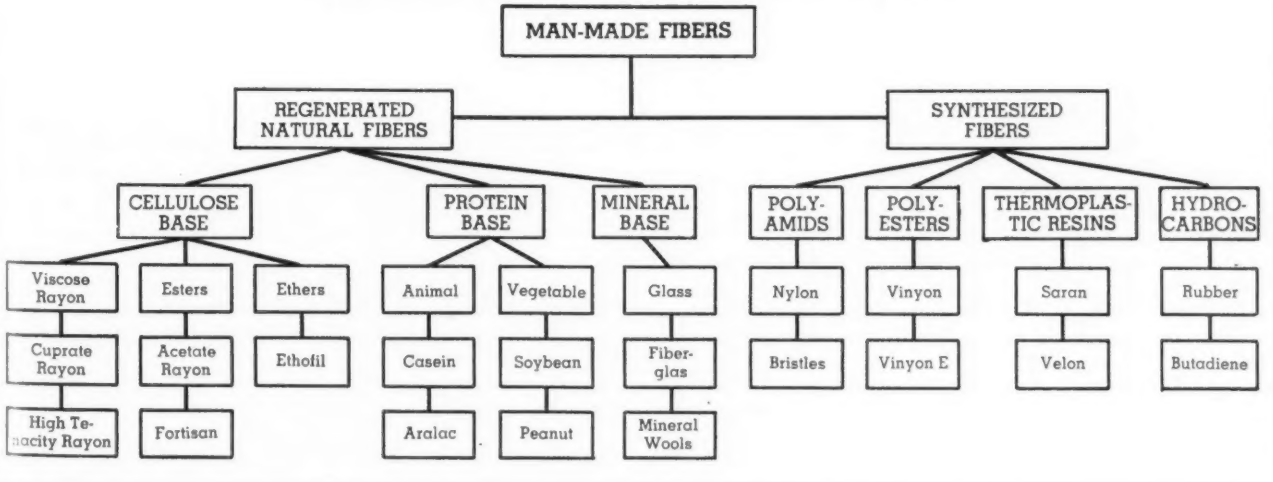
| | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EQUIPMENT | | | | | | | | | | | |
| Spindles in place at beginning of year | 31,442,174 | 30,938,340 | 30,889,484 | 29,253,444 | 27,700,194 | 26,704,476 | 25,986,620 | 24,943,302 | 24,532,146 | 24,146,130 | 23,845,746 |
| Increase or decrease from preceding year | 884,352 | 503,834 | 48,856 | 1,636,040 | 1,553,250 | 995,718 | 717,856 | 1,043,318 | 411,156 | 386,016 | 300,384 |
| New installation, additions and replacements | 348,568 | 529,840 | 214,874 | 469,316 | 772,724 | 178,280 | 349,416 | 414,974 | 449,848 | 210,456 | |
| OPERATION | | | | | | | | | | | |
| Spindles active at any time during year ending July 31st | 26,894,860 | 27,742,462 | 26,700,946 | 24,664,428 | 25,419,110 | 24,774,004 | 23,731,050 | 23,585,938 | 23,389,454 | 23,607,508 | |
| Spindles idle during same period | 4,547,314 | 3,195,878 | 4,188,538 | 4,589,016 | 2,281,084 | 1,930,472 | 2,255,570 | 1,357,364 | 1,142,692 | 538,622 | |
| Average number of active spindles based on twelve monthly reports | 24,873,270 | 25,119,435 | 23,421,150 | 23,373,147 | 24,079,936 | 22,042,442 | 22,306,734 | 22,410,483 | 22,945,121 | 23,037,332 | |
| Intermittent spindles (being the *difference* between *average active spindles and those active at some time during year*) | 2,021,590 | 2,623,027 | 3,279,796 | 1,291,281 | 1,339,174 | 2,731,562 | 1,424,316 | 1,175,455 | 444,333 | 570,176 | |
| Percentage relation of average active spindles to spindles in place | 79.11% | 81.19% | 75.82% | 79.9% | 86.93% | 82.54% | 85.84% | 89.85% | 93.53% | 95.41% | |
| Spindle hours run | 86,580,232,828 | 75,711,412,882 | 76,017,361,934 | 91,773,252,676 | 95,591,131,816 | 75,925,187,178 | 92,559,108,308 | 98,183,985,391 | 121,772,205,730 | 133,492,717,810 | |
| Hours run per average active spindle | 3,481 | 3,014 | 3,246 | 3,926 | 3,970 | 3,444 | 4,149 | 4,381 | 5,307 | 5,794 | |
| MARKET | | | | | | | | | | | |
| Production in square yards | 7,866,040,000 | 6,878,579,000 | 7,135,276,000 | 8,613,837,000 | 9,445,914,000 | 7,502,168,000 | 9,044,979,000 | 9,593,557,000 | 11,327,903,000 | 12,418,160,000 | |
| Exports in square yards | 302,042,000 | 226,306,000 | 186,565,000 | 200,501,000 | 236,251,000 | 319,634,000 | 367,466,000 | 357,925,000 | * 500,000,000 | * 450,000,000 | |
| Imports in square yards | 41,348,000 | 41,533,000 | 63,674,000 | 114,195,000 | 147,320,000 | 58,282,000 | 111,817,000 | 84,344,000 | * 75,000,000 | * 25,000,000 | |
| Available for domestic consumption | 7,605,346,000 | 6,693,806,000 | 7,012,385,000 | 8,527,531,000 | 9,356,983,000 | 7,240,816,000 | 8,789,330,000 | 9,319,976,000 | 10,902,903,000 | 11,993,160,000 | |
| Population at July 1st | 125,770,000 | 126,626,000 | 127,521,000 | 128,429,000 | 129,257,000 | 130,215,000 | 131,200,000 | 131,970,000 | 133,217,000 | * 134,713,000 | |
| Available for per capita consumption in square yards | 60.47 | 52.86 | 54.99 | 66.40 | 72.39 | 55.61 | 67.00 | 70.63 | 81.84 | 89.03 | |

* Partly Estimated

**ALL-TIME HIGHS** in the production of woven cotton cloth in 1942, with gains of 50% or more in cloth-yardage and consumption of cotton as compared with pre-war averages, were coupled by W. Ray Bell, president of the Association of Cotton Textile Merchants, in his annual survey, "Ten years of cotton textiles," with a sharp warning that due to recent developments even greater efforts will be required if this production is to be maintained in 1943. Among such developments, he listed war contract renegotiation and policies of OPA. Any decrease in production, in Mr. Bell's opinion, would have its principal effect in further reduction of available goods for "non-essential" civilian use.

# A CLASSIFICATION OF MAN-MADE FIBERS

**Proposed System for Classification of Man-Made Fibers**




**A SYSTEM** for classifying man-made fibers proposed by Herbert R. Mauersberger, technical editor, *Rayon Textile Monthly*, at the spring meeting of Committee D13 of the American Society for Testing Materials, is shown in the above chart. A feature of the system suggested is that it avoids the use of coined words for designating different classes of fibers, and divides all man-made fibers into two major classes—those derived from natural sources, and those produced by a combination of complex or elementary chemicals by a true synthesis.

# Textile Mill "E" Awards

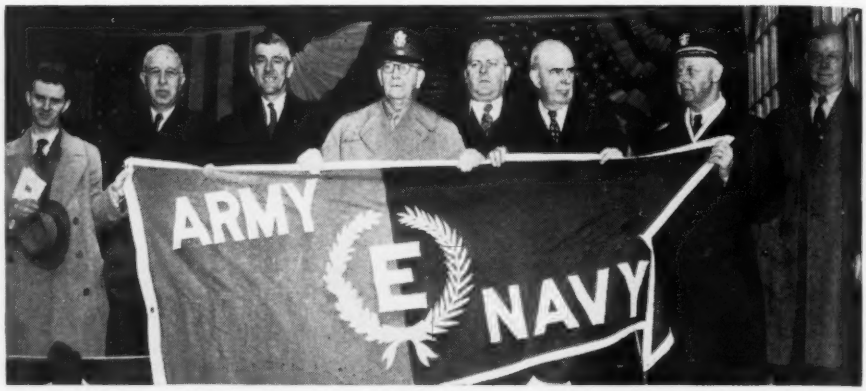
**MONTH BY MONTH** more textile mills fly the Army-Navy "E" pennant for excellence in achievement. Here are pictures connected with only a few of the recent presentations. Additional mills have been awarded the pennant and presentation ceremonies will be coming along in the near future.

Among the recent winners not previously reported in these columns are the following textile mills:

American Silk Mills, Orange, Va.
Continental Mills, Philadelphia, Pa.
Mason Silk Co., Winsted, Conn.
B. F. Goodrich Co., Clarksville (Tenn.) Division.
Mt. Vernon-Woodberry Mills, Tallassee, Ala., Plant.
Century Ribbon Mills, York, Pa.
Drayton Mills, Spartanburg, S. C.
Androscoggin Mills, Lewiston, Maine.

Also awarded the "E" are these firms which are associated with the industry:

Hercules Powder Co., Virginia Cellulose Division, Hopewell, Va.
Rice-Stix Dry Goods Co., Farmington, Mo.
Murray Co., Atlanta, Ga.




ARLINGTON MILLS, Lawrence, Mass.—Officials line up behind the "E" Pennant following the award ceremonies. Major Gen. C. L. Corbin (center) made the presentation. From left to right, Daniel F. Downey, president of union local; J. Sime Mercer, mill agent; Leverett Saltonstall, Governor of Massachusetts: Major Gen. Corbin, chief of the procurement service, Army QMC.; James P. Meehan, mayor of Lawrence; Franklin W. Hobbs, president, Arlington Mills; Capt. J. N. Jordan, U.S.N., representing the Navy; John F. Welch, of employees' committee for award-pin acceptance, 57 years with Arlington.

TRYON CO., Tryon, Ga.—Official group at "E" Pennant presentation ceremonies. Left to right: Dr. C. R. Wilcox, master of ceremonies; Lieut. A. S. Lewis, U.S.N.; John L. Riegel, chairman of the board, Tryon Co.; N. Barnard Murphy, president, Tryon Co.; Lt. Col. Harold M. Manderbach, Army QMC; G. H. H. Emory, treasurer of Tryon Co.

BROOKSIDE MILLS, Knoxville, Tenn.—View at the recent "E" presentation ceremonies; Arthur L. Emery, vice-president and general manager of Brookside receives the lapel pin from Lieut. Reginald F. Brooks, U.S.N.

EXPOSITION COTTON MILLS, Atlanta, Ga. —Mill received Army-Navy "E" Pennant last month. At right is old drawing of the exposition from which the mill draws its name. It began operation on the site of this exposition about 60 years ago, utilizing some of the buildings. Part of one original structure is still in service today. Col. R. T. Stevens, Army QMC, delivered principal address at the "E" presentation. Acceptance was made by George E. Glenn, Jr., president of the company.

# NEWS OF THE MONTH

## Spinners Hear Textiles Classed as "Essential"

The essential character of textile yarn and fabric manufacture was stressed by Frank Walton, head of the Textile, Clothing and Leather Division of WPB, in an address before a meeting of the Southern Combed Yarn Spinners Association, at Gastonia, N. C., Mar. 30. He reported that the War Manpower Commission has approved this definition, and that certain important jobs in plants would be classified as "necessary." He said that WMC would shortly release this order to Selective Service Local Boards. Mr. Walton praised combed yarn spinners for their production record, but asked each mill to strive in 1943 to better its output 1942 record by 10%.

Dr. W. P. Jacobs, now consultant in Office of Technical Information, QMC, also spoke. He told of the War Orientation class he recently attended at Fort Leavenworth, Kansas. Capt. J. P. Kinard, QMC, discussed the coming procurement program. Hugh Comer told of the Avondale Mills' program to solve the absentee problem. W. L. Balthis, president of the association, presided.

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## Government Wool Buying Starts Apr. 24

The Government wool-buying program was still nebulus at time of going to press, although it was expected to become effective on April 24. Department of Agriculture has arranged for Commodity Credit Corp. to buy wool from growers at current ceiling prices less freight and allowances for marketing costs. CCC charges for appraisal, storage and interest will be 1⅛¢ per grease pound. The plan at present is for only a year as the CCC has not yet been extended beyond 1943 by Congress. Whether sale by growers to CCC is mandatory was not clear.

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## Army Reports to the Cotton Industry

Second in the series of National Conference-Forum dinners sponsored by the New York Cotton Exchange and held March 8 at the Biltmore Hotel in New York, found the Army firmly entrenched on the speakers stand.

In pounds, in dollar value, and in diversity, stated Col. Robert T. Stevens, Chief of the Textile and Clothing Branch Procurement Division of Quartermaster General's Office, there is no basic raw material used in the Quartermaster Corps which ranks with cotton. The industry consumed approximately 11½ million bales in 1942—a figure which, for the first time in history, closely approximated the total of the year's cotton crop itself. This astonishing job is all the more remarkable when one considers that it was accomplished by the smallest amount of machinery in place in many, many years.

Other guest speakers were Maurice Hirsch, Chief of the Settlement Division, War Department, Price Adjustment Board, who took up important questions involved in contract renegotiation in the cotton industry. Col. A. Robert Ginsburg, Aide to the Under-Secretary of War, outlined war needs and patterns. Robert J. Murray, president of the New York Cotton Exchange, presided.

The third forum is to be held in Memphis, Tenn. Copies of booklets covering the transcript of the entire proceedings of the first forum are available from the Exchange.

Bonnie Beth Byler, the 1943 Maid of Cotton, chooses gingham with a gleam for this sweetheart of an all-cotton evening gown and its matching heart-shaped purse. The outfit is made of red-and-white-checked gingham with a permanently glazed finish.

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## A Program for Post-War

The Committee for Economic Development, Room 3311, United States Department of Commerce Building, Washington, D. C., has published a book entitled "Preparing for High Levels of Employment and Productivity." The booklet outlines the objectives of that Committee, which is headed by Paul G. Hoffman, president of the Studebaker Corp., indicates how companies should proceed with post-war planning, and advances a set of "post-war questions worth posing now." The latter questions have to do with product development, production, purchasing, finance and accounting, marketing and distribution, personnel, and general policy.

The committee states, significantly, that it feels "that it is quite obvious that commerce and industry can meet their responsibilities in winning the peace only if the

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QUALITY
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hundreds of thousands of individual enterprises in this country start *now* to develop their own post-war production and marketing programs." The Committee is neither an official nor semi-official agency of the Government; it is completely independent and self-financed. It invites questions and requests for further information.

▼ ▼ ▼

## Recent OPA Enactments

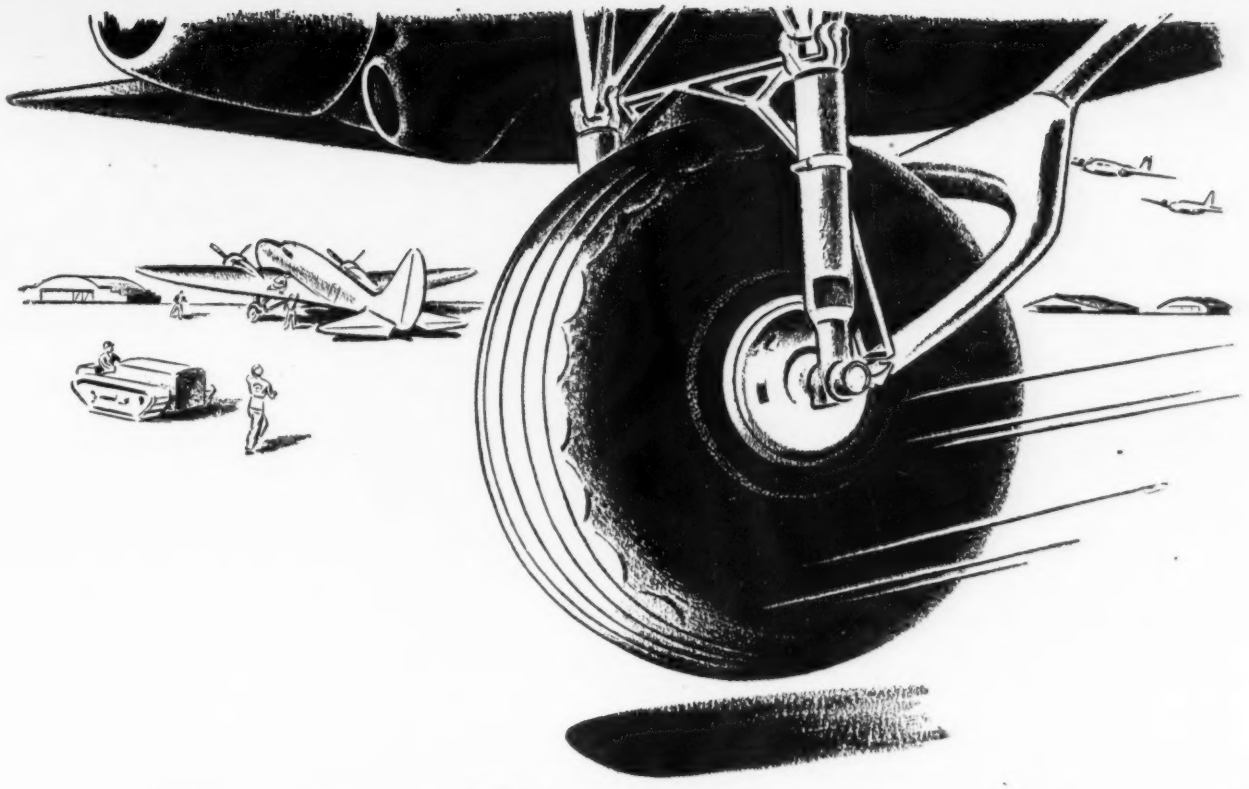
Among recent orders and amendments by OPA are the following:

Up to time of writing the maximum concession made by OPA relative to its order MPR 339 setting ceilings and conditions on sale of rayon hosiery is deferment of some provisions for several months. Thus mills may sell hosiery that is not grade A at grade A prices until May 15, wholesalers ditto until June 15, retailers ditto until July 15. Some changes in the grade A standards will be made in order to increase the volume of output which can conform to these standards. The only marking required of manufacturers until May 15 will be gauge and grade. The issuance of the order on March 8 (reported in our last issue) brought a flood of protests from the hosiery industry and distributors. There are still many rough spots left, particularly the arbitrary margins between mills, wholesalers and retailers and the inadequate differential between branded and unbranded goods.

Rayon hosiery producers may purchase for each quarter an amount of English-spun combed cotton yarn for hosiery reinforcement equivalent to 30% of their average monthly consumption of silk and Nylon during the first six months of 1941 under WPB order effective April 1. Quarterly purchases had previously been limited to 20% of this basic monthly poundage. The action (Supplementary Order M-272-a) means that approximately 900,000 lb. of the English yarns will now be imported each three months compared with 600,000 lb. previously.

Spinners of carded cotton yarns were given notice by OPA to refrain from putting more twist into yarn than called for by purchasers. Increased twist makes yarns eligible for premiums above the ceiling prices provided for standard yarns in MPR 33. OPA warned that if the practice persists, a restrictive provision will be added.

A LARGE ARMY TENT undergoes major repairs in the machine section of the Quartermaster Canvas and Webbing Repair School at Camp Lee, Va. Staff Sgt. Edward R. Sapecky looks on as one of the advanced trainees does his stuff. This is only one of many maintenance practices whereby the Army take care of its textiles after it gets them.



# Rayon Tire Cords Stand Up in Shock Landings

Huge air transports loaded with men and supplies must have tires that can "take it."

Tire cords made from high-tenacity rayon yarn are used on cargo planes and bombers to take the shock of high-speed landings and take-offs.

Rayon cords provide the strength and resiliency needed for tires on jeeps, trucks and motorized artillery. Tires run cooler, give longer mileage and require less of our limited supply of rubber.

The Butterworth Organization has developed and is now building high-tenacity rayon spinning machinery. We will continue to give our best efforts to increasing rayon production for war use.

Butterworth Machines play their part in the battle of production at every step in the Wet End of Textile Finishing—bleaching, boiling-out, drying, calendering, dyeing.

The cooperation of Butterworth Engineers is freely offered to every mill seeking to achieve increased productive efficiency... or to repair or replace worn-out or obsolete equipment.

All of our facilities not required for Ordnance production are available to help you solve your problems. Let our experience serve you now.

H. W. BUTTERWORTH & SONS CO.
Phila., Pa. Serving the Textile Industry since 1820
Offices in Providence, R. I. and Charlotte, N.C.
In Canada: W. J. Westaway Co., Hamilton, Ont.

***64%**

**of equipment now in use in the wet end of textile finishing cannot operate at a profit in competition with modern machines.**

*Proved by Research

**Butterworth**

**PRODUCING GUN MOUNTS FOR THE UNITED STATES ARMY**

# Surprising

## How DEVOPAKE hides and covers any surface *in just one coat!*

**SURPRISING** it is . . . even to maintenance men and master painters . . . whose experience in painting is broad. Certainly it was surprising — and gratifying — to the school commissioners in a large city (name on request) whose use of Devopake in room painting saved them 35% over former, ordinary methods. **High hiding power** of Devopake saved washing down of walls beforehand. Self-sealing action eliminated an undercoat. **Spreading quality** of Devopake cut gallonage from former 5 gallons per room to 2¼ gallons. **Big-brush workability** quickened time of application . . . **saved** man hours.

Devopake offers this new course in the school of painting experience and stands ready to save you time . . . money . . . labor in making all wall surfaces brighter, lighter, cleaner . . . with just **one** coat—one coat that is a **self-sealing primer and finish coat** in one. Because Devopake is an oil-base paint . . . it will stand up under wear and washing. And it will diffuse and reflect the maximum light available. Devopake by popular demand now comes in **7 practical colors.**

Devoe's maintenance paint line is built to meet all your requirements including high resistance to fungi, fumes and moisture.

Write us today for complete information that can help you solve your maintenance paint problems.

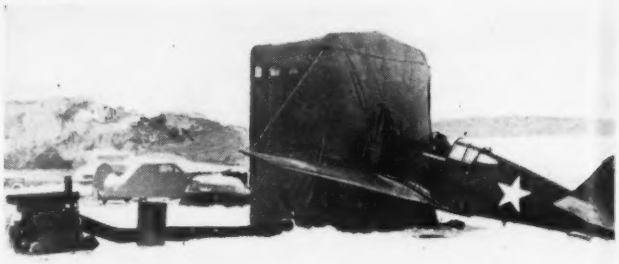
***Specify Devopake on your next paint job and enjoy guaranteed satisfaction.***

**DEVOE & RAYNOLDS CO., INC.**

*The 189th Year of the Oldest Paint Maker in America*

FIRST AVENUE AT 44TH STREET, NEW YORK, N. Y.



CHAMBER-LIKE structure of canvas protects aircraft workers where the temperature is frequently far below the freezing point. Mechanics can work comfortably on the engine and motors are brought to the proper flying temperature by gasoline-fed heaters, which blow hot air through the pipes.

## Textile Committee to Advise I.L.O.

A committee representing management and labor in the textile industry of the United States and including representatives of the public has been established to advise the International Labor Office in its current studies of the probable position of the textile industry in the post-war period. Those who have accepted appointment are as follows:

Public—Dr. Carter Goodrich of Columbia University; Dr. Samuel McCune Lindsay, Columbia University; William Menke, chairman of the executive committee of the National I.L.O. Committee of the United States; Dr. R. Carter Nyman, Yale University.

Management—Donald Comer, chairman of Avondale Mills, for cotton; G. H. Conze, president of Susquehanna Mills, for rayon; Marland C. Hobbs, vice-president of Arlington Mills, for wool; Arthur Paul, vice-president of Dexdale Hosiery Mills, for hosiery.

Labor—Solomon Barkin, director of research, TWUA, C.I.O.; William Batty, chairman of the executive board, UTWA, A.F. of L.; William Pollock, general secretary-treasurer, TWUA; Anthony Valente, UTWA.

▼ ▼ ▼

## Recent WPB Doings

Among recent WPB utterances are the following:

Conservation of materials and labor is the purpose of WPB's Order L-274 effective May 15 covering men's, women's and children's hosiery. The savings are achieved by eliminating the poorer quality stockings, by limiting the yarns actually used and by curtailing the number of styles and colors in lines. Permitted women's hosiery constructions follow closely those listed in OPA's MPR 339. Savings of about 14,000,000 lb. of yarn are believed possible by restrictions laid on men's and children's hose.

A definite improvement in the supply of worsted fabrics can be expected toward the end of this year, a representative of the Wool Branch of WPB recently declared. He indicated that compared to available supply of worsted fabrics in the last quarter of 1942, supplies of fabrics in the last three months of this year should be approximately 30% greater as a result of declining military needs.

The woolen situation, as distinguished from the worsted, is not so favorable, particularly because of military and Lend-Lease requirements, it was stated. At a recent meeting of the Men's and Boys' Clothing Industry Advisory Committee with officials of the Textile Division of WPB it was indicated by a Government official that there would be a drop of 10% in supplies of woolen fabrics for men's clothing, compared with the last quarter of 1942.

Textile mills can relieve the current shortage of picker

*Here's Your Answer to*

# WARTIME DETERGENT PROBLEMS

## Quaker Chemical Research Produces a Broadly Effective Material to Meet Today's Needs

CHEMICAL RESEARCH—like that carried on day after day in the Quaker Laboratories—is accomplishing wonders in overcoming wartime shortages.

Many times newly developed alternates prove vastly superior to previous standard products. Consider the case of textile detergents . . .

Today, the available quantities of synthetic detergents are very limited, so textile men face the prospect of going back to conventional soaps . . . with their many imperfections.

### New Type Detergent Needed

Some months ago we foresaw this possibility and sensed both the need and the opportunity for a *new type* of detergent. So the problem was turned over to our research staff with instructions to

1. Produce a material that embodies the best characteristics of a good synthetic detergent . . . at the applied cost of soap.
2. Produce this from raw materials that are available in large quantities.

In appraising the first part of this problem, we knew the principal imperfections of soap are slow wetting-out, difficult rinsing and poor stability to hard water. These objectionable features were overcome.

### New Solvents Utilized

Since the advent of synthetic detergents, the solvent principle of cleaning has been neglected. So our laboratories blended a combination of new type solvents into this product to obtain maximum scouring effectiveness on oxidized oils, waxes, pectinous matter and other hard-to-scour materials.

*A Corner of the Quaker Chemical Research Laboratory*

### New Product Broadly Effective

The resulting product — called SCOURITE "S"—amply meets the rigid requirements set for it: SCOURITE "S" is made from non-critical raw materials . . . is powerfully effective, yet very mild . . . is economical to use . . . wets out quickly . . . turns out a first class scouring job . . . works at low temperatures . . . gives rapid results . . . does not affect colors . . . rinses freely . . . and insures level shades in dyeing.

### Performance Proved in Use

Although our extensive equipment enables us to simulate mill conditions in our laboratories, we always insist that a new product be proved in actual production. So this new SCOURITE "S" was turned over to our Quaker Textile Process Engineers with instructions to "give it the works." They did . . . and from their reports we are satisfied that it does well the job for which it was created.

**This product has proved excellent for—Scouring . . . Fulling . . . Soaping Off . . . Kier Boiling . . . Boil Off . . . and many other operations.**

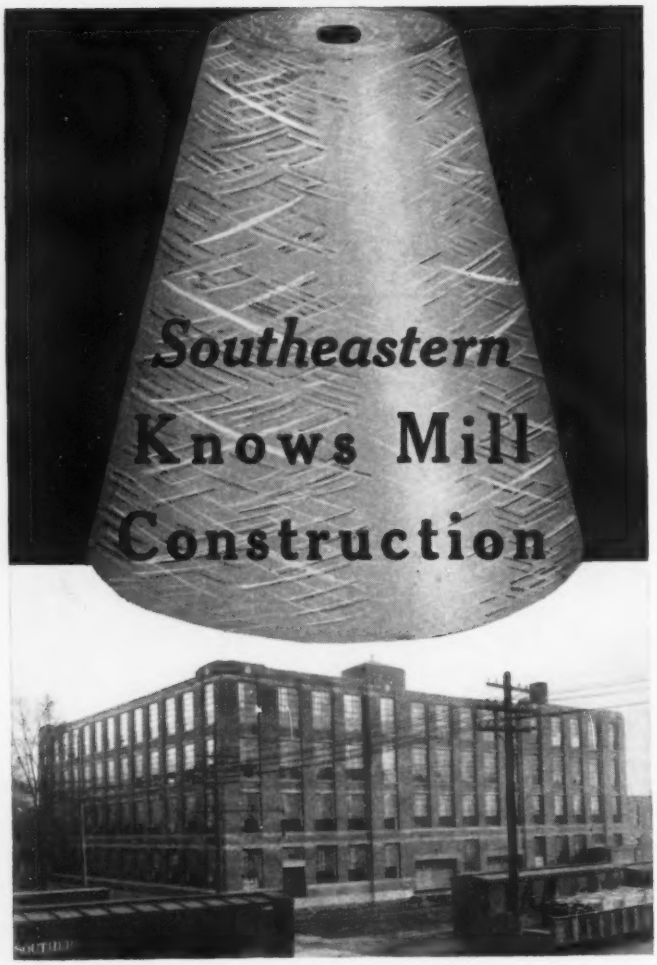
**You can now obtain complete technical data on SCOURITE "S" upon request . . . and one of our Textile Process Engineers will be happy to sit down with you and talk about its place in your processing. Just write or wire—**

## QUAKER CHEMICAL PRODUCTS CORP.

CONSHOHOCKEN, PA.

OTHER PLANTS IN CHICAGO AND DETROIT

WAREHOUSE STOCKS IN PRINCIPAL INDUSTRIAL CENTERS




Typical construction work done by SOUTHEASTERN for the Textile and related industries.

The landscape of Dixie is dotted with hundreds of Textile and other Industrial plants—built "According to Plans and Specifications" by SOUTHEASTERN—giving proof of the specialized skill and ability to satisfy you and your architect in heavy or light mill construction—when peace time comes again. Since Pearl Harbor, SOUTHEASTERN has been constructing huge cantonments, bases, housing and hospital projects—to build a stronger future. In the meantime, if necessity dictates the reconditioning, adding to or replacing parts of your present plant facilities, SOUTHEASTERN offers its experience in obtaining WPB approval and determining project costs.

•

The Sky-Line of Dixie has been changed by SOUTHEASTERN

Southeastern Construction Co.
CHARLOTTE NORTH CAROLINA



sticks by shifting from white hickory wood to other colors of hickory, according to WPB and the Department of Agriculture. At least 3.5 million picker sticks are used annually, says WPB, a large percentage by mills producing for the armed forces. WPB states that extending acceptance to other varieties of hickory will enable mills to cope with any serious shortage which might develop. A report by Agriculture says: "Tests show that weight for weight, sound straight-grained seasoned hickory wood has the same strength, toughness, and resistance to shock regardless of whether it is heartwood (red hickory), sapwood (white hickory), or mixed hickory (heartwood and sapwood)."

The Textile Branch of WPB cooperating with related Government agencies is studying the possibilities of increasing output and/or conserving supply of rayon goods for civilians by simplifying rayon gray goods constructions. By reducing substantially the 1400 constructions, there would be more time and manpower for increased production. Efforts will be made to balance rayon yarn deniers to the cloth simplification program. Meanwhile, no priority ratings will be issued for civilian rayon cloth orders.

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## Outerwear's 25th Anniversary

The annual meeting and dinner of the National Knitted Outerwear Association was held April 8 at Hotel Astor, New York. It was the 25th anniversary of the organization. Speakers scheduled included Maj.-Gen. Clifford L. Corbin, and former Mayor James J. Walker of New York. Over 1,000 attended the dinner and bonds to buy a Flying Fortress were subscribed to. The bomber will be named "K. O."

▼ ▼ ▼

## Government Promoting Use of Alien Patents

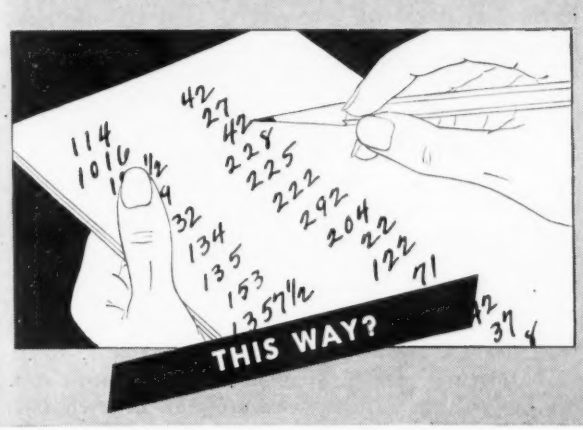
The Alien Property Custodian is promoting the widespread use in this country of U. S. patents standing in the name of enemy aliens and nationals of enemy-occupied countries. Included in such patents are several hundred relating to the manufacture and processing of textiles. Classified lists of these patents may be obtained from the Office of Alien Property Custodian, Chicago, Ill., at the price of 10c each. There are nine classifications pertaining to textiles, numbered 19, 26, 28, 38, 57, 66, 68, 96, 139. Libraries of copies of vested patents have been opened at the offices of the Alien Property Custodian at 120 Broadway, New York, and Field Bldg., Chicago. Full information on securing licenses can be obtained at either of these libraries.

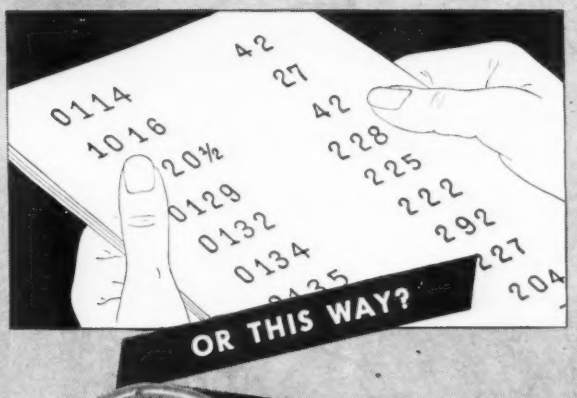
▼ ▼ ▼

## Wartime Standards and Tests

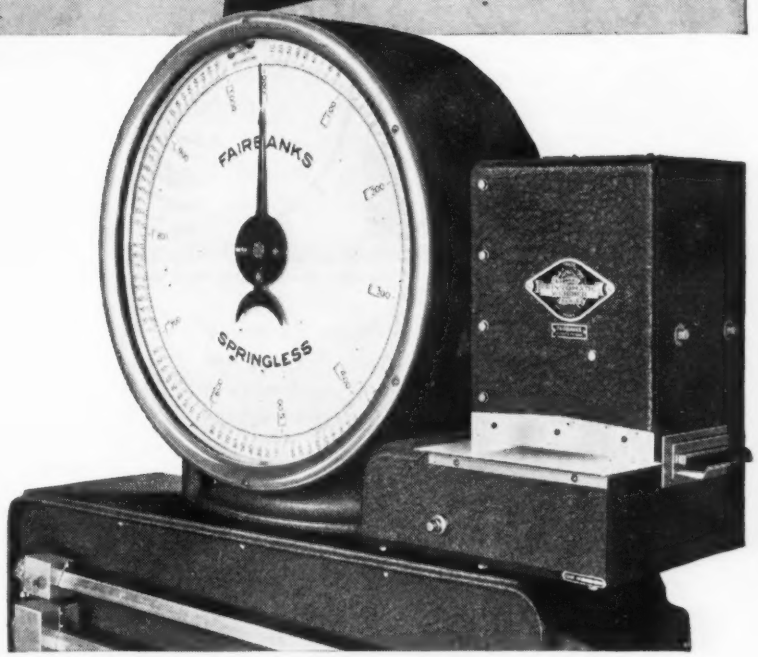
Accelerated tests for textiles for military use and development of new standards for industrial and consumer fabrics were among the principal subjects discussed at the spring meeting of Committee D13 of the American Society for Testing Materials, held March 10 to 12, in New York. At the papers session, H. S. Schenker, of the Standards Division of OPA, outlined the functions of his division and discussed the recently established construction standards for women's rayon hosiery. R. W. Vose, of Chicopee Mfg.

# How Are Weight Records Made In Your Plant—




## For precision weighing and precision recording use *FAIRBANKS SCALES* with *PRINTOMATICS*

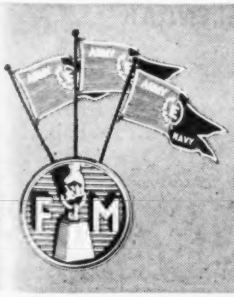



● Of course, *sustained accuracy* in the weighing machine is vitally important. But no matter how accurate the machine is, unless weights are *accurately recorded,* the element of error still remains.

Fairbanks Scales with Printomatics eliminate these human errors—because the scales read the weight automatically and then automatically make a *printed* record of the weight. In addition to eliminating errors, Fairbanks Scales can be fitted into your production flow to do a variety of jobs better than they can be done in any other way. Fairbanks Scales weigh loads in motion . . . count small parts . . . record the flow of liquid chemicals . . . guard secret formulas in compounding . . . control batching . . . automatically control ingredients . . . automatically control aggregates . . . and many other jobs.

The organization which made Fairbanks the greatest name in weighing brings you 113 years of scale manufacturing experience. That, too, is worth serious consideration.

Fairbanks, Morse & Co., 600 S. Michigan Avenue, Chicago, Illinois.



**FAIRBANKS-MORSE**

DIESEL ENGINES
PUMPS
MOTORS
GENERATORS
SCALES
WATER SYSTEMS
FARM EQUIPMENT
STOKERS
AIR CONDITIONERS
RAILROAD EQUIPMENT

FAIRBANKS SCALES

Scales

**EXSIZE, for desizing may step up their softness!**

© 1943, Pabst Brewing Company, Milwaukee, Wisconsin

● If your fabrics do not always have a feeling of softness and suppleness, the desizer you use may be at fault. Chances are, they'll have a more uniform, softer "hand" if you use EXSIZE.

EXSIZE is a concentrate of pure malt enzymes, with no harsh chemicals, acids or alkalis. Malt enzymes are recognized by scientific test to be the best all-round desizing agent.

EXSIZE cannot harm animal, vegetable or synthetic fibres. On the contrary, it actually improves them, leaves them less harsh, less brittle. EXSIZE works rapidly, thoroughly—rinses easily — and provides a cleaner, more workable cloth for bleaching and dyeing. And its cost is low. A few pennies worth of EXSIZE will desize hundreds of yards of cloth. Write for a free descriptive booklet. If you wish, an experienced Pabst field man will call — there's no obligation.

**PABST SALES COMPANY**
**CHICAGO, ILLINOIS**
Warehouses at New York, and
Textile Warehouse Company, Greenville, S.C.

PABST BREWERIES




Corp., demonstrated the use of the Balls sledge cotton sorter for determining staple length of cotton. Herbert R. Mauersberger, technical editor, *Rayon Textile Monthly*, outlined recent progress in production and application of synthetic fibers.

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## Number of Learners and Their Wages Increased

Under an order effective March 22, a larger number of learners in the textile and several apparel industries may be employed and the wage rate for those learners is increased from as low as 22.5c to 35c an hour. The Administrator of the Wage-and-Hour and Public Contracts Divisions of the Department of Labor stated that the order is for the duration of the war emergency only, and is intended to replace losses arising out of abnormal labor turn-over. Number of learners may now be based on actual need by individual plants.

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## Things to Worry About

The original plan to limit the length of men's socks to 9½ in., British war-time measurement, or even later to 11 in., apparently has been tabled. Certain groups seem to get excited about it. The argument which won at least a reconsideration of the plan was that if 4 in. were taken off the socks, underwear would have to be lengthened to preserve a judicious, functional and health-serving overlapping of the garments when worn together. . . . The WPB bucked the farm bloc head-on when it ordered that the number of buttons permitted on each side opening of bib overalls be reduced from two to one. . . . Babies' knitted garments are to be shorn of unessential trimmings such as rosebuds. . . . The zoot suit—Brooklyn's secret weapon—is appearing on the streets of Paris, it was disclosed at Fighting French headquarters in London. The news was hailed by the Fighting French as "a gesture guaranteed to drive the Germans crazy."

▼ ▼ ▼

## "Battle Stations for All"

The Office of War Information has published a handbook "Battle Stations for All" explaining the Government's living-cost and anti-inflation program.

The booklet was prepared by OWI in cooperation with Government agencies concerned with the program. It is based chiefly upon explanations of Government policy by President Roosevelt, Economic Stabilization Director James F. Byrnes, and the heads of the other agencies administering different parts of the program.

The booklet discusses the consequences of failure in the fight to control living costs and prevent further inflation.

### TEXTILE CALENDAR

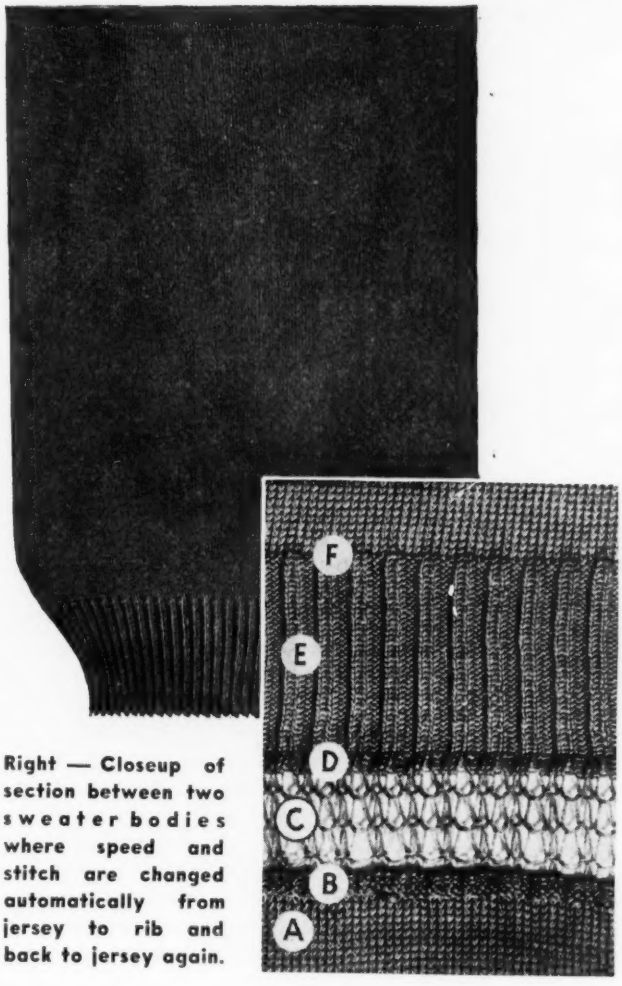
National Association of Wool Mfrs., annual meeting, Hotel Commodore, New York, Apr. 14, 1943.

Hosiery conference and annual meeting of National Association of Hosiery Mfrs., Waldorf Astoria, New York, April 16 and 17, 1943.

American Cotton Manufacturers Association, annual convention, Atlanta-Biltmore Hotel, Atlanta, Ga., Apr. 30, 1943.

National Cotton Week, May 17 to 22, 1943.

Swim-for-Health Week, June 21 to 28, 1943.




**Right — Closeup of section between two sweater bodies where speed and stitch are changed automatically from jersey to rib and back to jersey again.**

# Continuous Production

## of Army and Navy Sweaters

Leighton Transfer Machines are doing their part on the production line of many knitting mills—army V necks, turtle neck and round neck sweaters—air corps light weight jersey sweaters —marine O.D. three button sweaters and navy round neck sweaters.

Automatic transfer from jersey stitch to rib and back to jersey is controlled from the pattern chain and the speed is also automatically changed before and after the transfer, also before and after making the edge.

The Leighton principle of operating the horizontal needles from the *outer dial towards the centre* is easier on the yarn and on the cams. Good fabrics can be knit from heavy or fine yarns on the same machine—an outstanding Leighton advantage.

A—***Jersey stitch***—body of sweater. Speed is automatically reduced before changing to B.

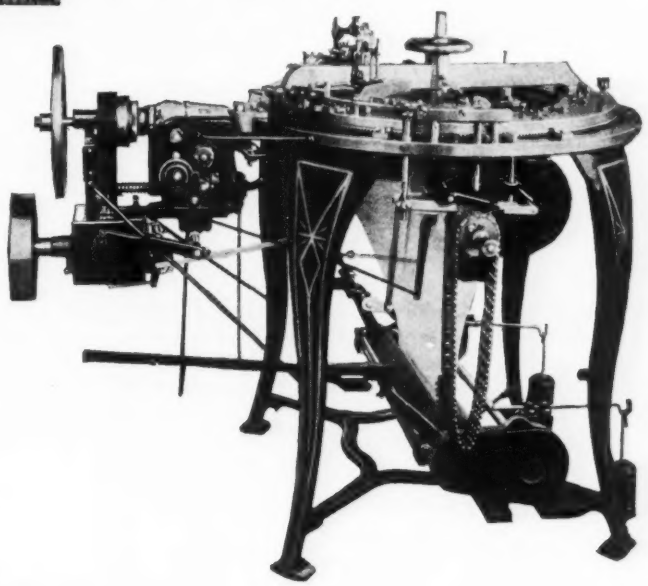
B—***Welt***—the neck piece is sewed on this end after separating stitches (C) are removed.

C—***Separating course on run off.*** — Sweaters are separated leaving a clean finished edge without cutting the fabric.

D—***Welt on racked edge***—the bottom or cuff of the sweater.

E—***The rib section***—speed is increased and stitch changed automatically.

F—***Before transfer to jersey stitch,*** the speed is reduced and afterwards increased automatically for the body of the sweater.



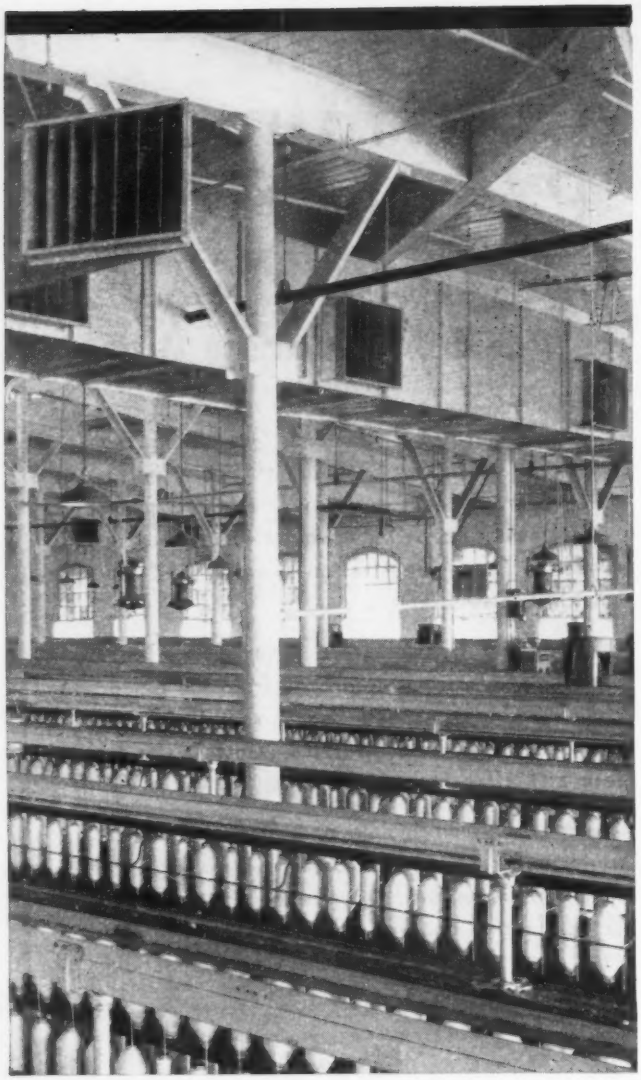
**LEIGHTON MACHINE COMPANY**

**ESTABLISHED—1873**

**LEIGHTON**

**MANCHESTER NEW HAMPSHIRE**

**INCORPORATED—1894**



**In Modern Production**

# Parks
## Certified Climate

REG. U. S. PAT. OFF.

is not a textile accessory.

It is an integral part of modern high speed textile operations. It has been known to pay for itself in less than a year.

**Parks-Cramer Company**

Fitchburg, Mass. Charlotte, N. C.



## High Temperature Drying of Textiles

Drying of textiles at higher temperatures than had previously been thought possible is expected as a result of researches carried out under the auspices of Textile Research Institute, Inc. A summary of the results of these researches appears in March issue of *Textile Research*, official publication of the Institute and the Textile Foundation. The studies were made to determine the proper relationship of temperature, relative humidity of heated air, and time of exposure in drying various types of textiles.

▼ ▼ ▼

## Textile Chemists Discuss Finishing of Army Duck

Recent developments in dyeing and finishing Army duck and other cotton fabrics were discussed at a meeting of the Piedmont Section of the American Association of Textile Chemists & Colorists, held March 7, in Greenville, S. C. Lt. Col. Thomas D. Lewis of the Jeffersonville (Ind.) Quartermaster Depot outlined recent changes in specifications. Elmer C. Bertolet, Senior Technologist of the Engineering Division of the Jeffersonville Depot, described in detail the dyeing and finishing of duck for various military purposes.

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## Pacific Helps the Young Sewer

Pacific Mills Cotton & Rayon Division catches the attention of the teen-age crowd in a new educational booklet entitled, "The Magic of Fabric." In only a few weeks 1900 domestic science teachers had requested the booklet for more than 75,000 pupils. It shows what home sewing can do and suggests artful tricks to the lassies for getting the most out of what they've got. The ideas in "Magic" are based on down-to-earth, practical truths about line, color and design, gleaned from the archives of problem-wise beauty and fashion editors and educators.

▼ ▼ ▼

## This and That

**Deliveries of rayon yarn** by American producers amounted to 119,600,000 lb. during the first quarter of 1943, according to *Rayon Organon*. This total represents an increase of 2,400,000 lb. or 2% over the first quarter of 1942. Staple fiber deliveries totaled 39,200,000 lb., a gain of 2,800,000 lb., or 7½% over the 1942 period.

**Provisions** of Dye Conservation Order M-103 were explained by Dr. Arnold L. Lippert, chief of dyestuff section of WPB, at a meeting of the Silk & Rayon Printers & Dyers Association of America, last month in New York.

**A special course** to train women to take posts as laboratory technicians at the Philadelphia Quartermaster Depot has been inaugurated by Philadelphia Textile Institute. The course started on April 5. Students will be admitted to the class twenty at a time and will be paid while learning. Applicants must be between the ages of 18 and 42 and have at least a high school education.

**A process** for vat dyeing and Sanforizing of spun-rayon fabrics has been announced by Austinize Corp. To permit spun-rayon fabrics to be Sanforized, a small number of cotton warp yarns are incorporated in the fabric during

Informative advertisement—reading time: 1 min. 15 sec.

# "The facts about DRAX? (JOHNSON'S NEW WATER-REPELLENT TEXTILE FINISH) —here they are!"

**QUERY:** What is DRAX?

**FACT:** DRAX is a stable, aqueous emulsion of wax, aluminum salts and emulsifying agents.

**QUERY:** Why has it such high water-repellency and stain-resistance?

**FACT:** Because of a special method developed by S. C. Johnson & Son of making the colloidal particles extremely small and uniform in size. Much better impregnation of the fibres is the result. Application is uniform throughout the entire run of cloth.

**QUERY:** Is it easy to apply?

**FACT:** Yes. Simply dilute DRAX with ordinary water. Apply in a single bath, in any available type of padder. Temperatures may vary from room temperature to boiling. DRAX may be used on vat or sulphur-dyed textiles. Its acidity (pH 3.5 to 5) requires a minimum of control.

**QUERY:** What about storage of DRAX?

**FACT:** No need to worry. DRAX retains complete stability during storage, does not separate.

**QUERY:** DRAX users?

**FACT:** The list grows and grows. This is especially true of textile manufacturers making army and navy uniform cloth, material for work clothes . . . as well as fabrics of all kinds for civilian life.

**QUERY:** What about MILDEW?

**FACT:** DRAX formula 1860PMA was developed specifically to meet this problem. This formula contains sufficient quantity of phenyl mercuric acetate to provide a mildew-proofing which meets the microbiological test for *chaetomium globosum.*

**QUERY:** Are there any other important facts about DRAX?

**FACT:** Yes. DRAX meets the water-repellent requirements of certain Quartermaster textile specifications. Its high water-repellency helps improve hand. It is economical to use. Requires a minimum of regulating with organic acids during application.

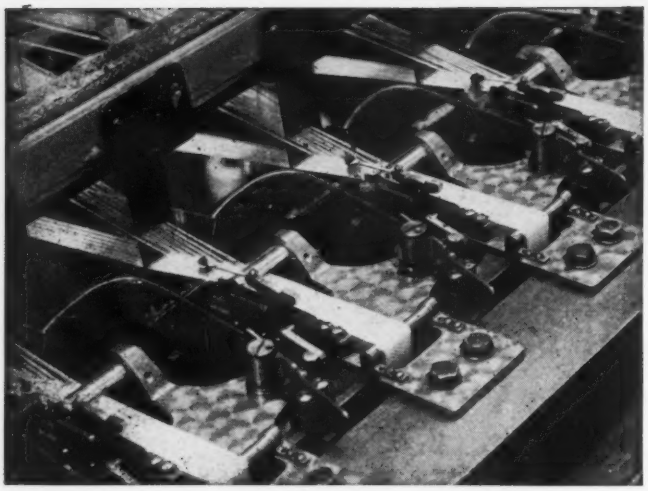
May we suggest this? A letter to us will bring you a special folder with technical data and further information on DRAX.

*Write for the facts about* DRAX. *Simply address*

**S. C. JOHNSON & SON, INC.**

**Industrial Wax Division, Department TW-43, Racine, Wis.**

★ BUY U. S. WAR BONDS AND STAMPS ★



*Change with the Times*

**CLUTSOM HIGHSPEED SHUTTLELESS LOOM**

We are still planning for War but many executives are planning ahead for Peace too.

Vast production of narrow fabrics will be needed after the war and the trade will go to those mills best equipped. It is time to consider weaving in the modern way, time to discard the old, time to think in terms of speed and high production at lower cost. Time to change with the Times.

Why not let us give you a demonstration of weaving in the modern way—those old type looms must be wearing out under the wartime beating they are taking.

**CLUTSOM MACHINES INC.**

**205 EAST 42 STREET NEW YORK**

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**FACTORY: Springdale, Connecticut**



weaving. Austinize Corp. plans to license other textile manufacturers to employ the process.

**Use of Nylon** in manufacture of tires for aircraft has been announced recently by United States Rubber Co.

**To provide controlled conditions** for testing of clothing and equipage for military purposes, the U. S. Army has installed a climatic research laboratory in a unit of Pacific Mills, Lawrence, Mass.

▼ ▼ ▼

## Controlled Textile Markets Drift Along

**Cotton** goods sellers are following the principles established during the last few months in hesitating to take unrated orders. Further controls as to work-garment fabrics, operations by converters, and fabric simplifications were put into effect during March, which limitations tend to make the market more and more routine. Fabric simplification is finding acceptance since the plans so far effected are intelligently conceived and in general are in harmony with trade opinion.

**Wool** goods trading is moving again, although there is little freedom to the market. Outside of small odd lots of goods which become available here and there, civilian yardage is distributed on an allotment basis. From the manufacturer's standpoint there is a definite trend toward staples for the fall season and clothiers will take them whether they like them or not. Blended fabrics are appearing in various semi-staple and fancy numbers and are meeting fair interest especially in women's wear. Additional large lots of wool goods are being ordered by the Quartermaster. The price of raw wool has been steadily advancing.

**Rayon** yarn allocations have not changed in recent weeks, but the outlook is for smaller quantities as further conversion of primary plants to war business continues. Several unit plants of the larger producers have now been completely converted to war work. It is expected that definite cuts in rayon yarn quotas for various civilian trades will be announced during April. Some rayon plants are complaining that they are prevented from getting their maximum output of rayon yarn because of scarcity of materials and supplies.

**Hosiery** simplification seems to be the next step in the general control exercised over this field. Possibly the finer yarns may no longer be approved for hosiery use, and 75- and 100-denier may be the two standard sizes. Buyers are willing to take in whatever mills can ship them as they seem to realize that the various controls, plus a growing scarcity of yarn and labor, are likely to make any type of hosiery scarce before the end of the year.

**Underwear** selling is very dull largely because of lack of goods. Buyers meet little success in picking up odd lots, and what mills have available is distributed on an allotment basis. Some underwear selling agencies are looking for supplementary lines because the dollar volume of their underwear sales is dwindling so rapidly. The request of the Army for 16½ million undershirts, bids for which were in on April 2, was a further reason for tightening the spring end of the business on civilian supplies.

**Outerwear** business hinges for the moment on available yarn supplies. Sellers who have yarns coming in are in enviable position since late operators have found desirable yarns difficult to get. Simplification of styles, which is coming to a head within the next week or two, will help the industry by permitting concentration on new numbers and aid distributors in their inventory problems.

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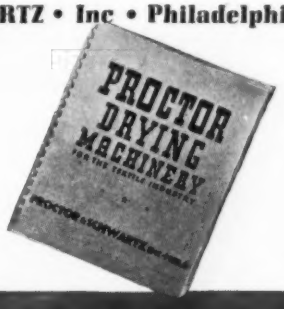
# Recognition

## PROCTOR DRYERS are RECOGNIZED by LEADING TEXTILE MANUFACTURERS

Just as any woman is quick to *recognize* and appreciate extra quality in textiles, so textile manufacturers *recognize* almost instinctively the extra value of Proctor Drying Machinery. For the great responsibility of maintaining absolutely uniform drying results, drying each kind of material to its proper texture, and keeping output to the highest possible level with a minimum cost, practically every textile manufacturer in the country relies on Proctor Dryers. Today, hundreds of Proctor Dryers are working for Uncle Sam, drying material for uniforms worn by all branches of the Armed Services. In every major industry where there is a drying problem, there is a Proctor Dryer scientifically designed and "custom built" to do the job right. If you have a drying problem, now is the time to have Proctor Engineers consider its solution toward that day when other-than-war products can be purchased. Naturally, if your product is vital to the war effort, we can supply you with new machinery today.

**PROCTOR & SCHWARTZ • Inc • Philadelphia**




We'll gladly send you our newest 24-page catalog, shown at right, on PROCTOR DRYING MACHINERY for the TEXTILE INDUSTRY. It's full of facts and illustrations on many Proctor Dryers designed to solve almost every conceivable textile drying problem. Write *now* for your copy.

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# Meeting Specific Needs

• Virtually every organization in the textile industry can profitably utilize our service. It is adaptable not only to all divisions of the trade, but also to the specific needs of the individual business. We will gladly show you just how our service can be used most effectively by your firm. Consult us, without obligation.

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*Factoring Founded on Service*


# "Typewriter Committee" in 1895

## Reminiscenses at Newnan Cotton Mills tell of early days

A committee appointed in 1895 to consider buying a typewriter; an act of the Board of Directors approving the payment of $14 for a Santa Claus; and another act of the Board of Directors authorizing the secretary to subscribe to TEXTILE WORLD—these were some of the interesting reminiscences which featured the talk of Karl B. Nixon, general manager of Newnan (Ga.) Cotton Mills, on the occasion of the presentation of the Army-Navy "E" Award to the mills and their employees.

This year marks the 55th anniversary of the company. Extracts from Mr. Nixon's talk, given at a luncheon held on the day of the award, follow:

"Site for the mill was selected on May 5, 1888. Plans and specifications for the mill building were approved July 6, 1888. Cornerstone was laid August 10, 1888. . . .

"On June 3, 1889, the Directors authorized the Secretary to subscribe to TEXTILE WORLD, monthly textile paper. We are glad that Earle Mauldin, who represents TEXTILE WORLD in the South, is with us today, and I'm sure the other textile trade-paper representatives will agree, as we have subscribed to the TEXTILE WORLD for more than 50 years, Mr. Mauldin should see that his people send the Newnan Cotton Mills TEXTILE WORLD the next 50 years free of charge. . . .

"An electric light plant was purchased from the Edison company on Aug. 2, 1889, and it was reported that the new type of lights in the mill known as electric lights were first used on Oct. 25, 1889. . . .

"Jan. 2, 1891, the Directors approved the payment of $14 for Santa Claus for the operatives' children and gifts were distributed to them on Christmas Day, 1890. Yuletide gifts have been distributed to children of employees each year since. . . .

"First picnic was given the employees on July 4, 1891. This picnic was held at Pearl Spring Park. . . .

"On April 18, 1892, Finance Committee made the following report: 'We found the operatives looking cheerful and content. They did not impress us as being overworked and poorly paid, as has been reported of cotton factories at large. Their compensation is more than they could make on rented farms. We venture the assertion that they make more money and fare much better than the tenants on your farms.' . . .

"By April 15, 1895, there were 150 employees on the payroll, and by this time the dyehouse was busily engaged in dyeing two to three bales each day. . . .

"On April 22, 1895, a committee was appointed to consider buying a typewriter. On May 10, 1895, Typewriter Committee was dismissed upon report that they agreed to defer this purchase. Records show that some time in 1900 this typewriter was finally purchased. . . .

"The advisability of purchasing humidifiers was discussed (1898). After some discussion it was agreed to spend $1,000. . . .

"On June 8, 1906, Vice-President reported chartering a train at cost of $120 to carry mill operatives and families to Grant Park on a picnic. On June 2, 1906, action was ratified by Board of Directors."

# PAINT RIGHT THROUGH WET FILM WITH DAMP-TEX

## LIQUID PORCELAIN-LIKE ENAMEL

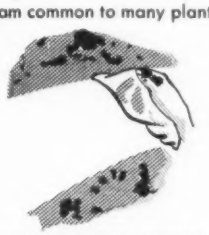
CHECK the following performance facts about this amazing enamel... then write us for complete details of our no-risk trial offer. **(1)** One coat of Damp-Tex covers. **(2)** Forces out moisture and dries overnight into porcelain-like waterproof film despite presence of moisture. **(3)** Sticks to wet or dry wood, metal, concrete, plaster and masonry. **(4)** Kills Rust, Rot, Dinge, Bacteria and Fungus*. **(5)** One gallon covers approximately 350 sq. ft. of porous surface, 450 sq. ft. of non-porous surface. **(6)** Will not check, peel, sag, soften or fade. No flavor-tainting odor. **(7)** Dries free of brush marks, may also be sprayed. Comes in colors and white.

*With Pre-Treatment.

**FREE!** *On the recommendation of the 4000 plants that use Damp-Tex, send for free descriptive folder R also details of our offer to ship you a trial order of Damp-Tex absolutely at our risk.*

**STEAM TEST**

Damp-Tex is unaffected by live steam common to many plants.



**WASHING TEST**

Constant moisture and repeated washings will not soften or in any way harm Damp-Tex.

**FUNGUS TEST**

Pre-Treated Damp-Tex will resist fungus, mold or mildew on the surface to be painted.

**MOISTURE TEST**

Water soaked bricks painted with Damp-Tex and dried in the sun prove the film will not blister or break.

**CAUSTIC SOLUTION TEST**

Two to three percent caustic washing solutions are not injurious to Damp-Tex Enamel.

# DAMP-TEX

## THE WET SURFACE ENAMEL

**ACID TEST**

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For light or heavy duty service Darnell Casters and Wheels are made for a long life of trouble-free usage, to protect floors and increase employee efficiency.

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# Letters to the Editor

## From England

MANCHESTER, ENGLAND

Editor, TEXTILE WORLD:

I have just been looking through the December issue of TEXTILE WORLD and I notice the very, very interesting articles therein.

I note in the journal some photographs which are very interesting to me, namely, those on page 67 and page 68. In one of them you appear, together with Fuller E. Callaway, Jr., son of my old friend. The last time I saw Fuller E. Callaway, Jr., he was with his father over here and was just a comparatively small boy. I keep in touch with Cason and also with Sam Austin who used to be with the Callaway Group, but who is now with the Avondale Mills, Sylacauga. Right next to the picture of yourself and young Fuller is a picture of Lt. Col. Bestor Robinson, and also my old friend Franklin W. Hobbs, who looks very well indeed. And then over the page I notice a picture in which Dr. Harold De Witt Smith appears. You have no idea how interesting I find the presentation of personalities in the textile industry of America, which appear from time to time in TEXTILE WORLD.

FRANK NASMITH
Universal Winding Co.

## From South of the Border

LEON GTO., MEXICO

Editor, TEXTILE WORLD:

For more than 40 years I have subscribed to TEXTILE WORLD and it is my intention to continue in the same manner, as I have derived knowledge and information from it and feel very obliged.

RICARDO MONTES DE OCA

## The Saga of the Craftsman

NEW YORK, N. Y.

Editor, TEXTILE WORLD:

The human interest story of Mrs. Tooley is one of the most touching things that I have read in a long time. It is almost Homeric in its saga simplicity. A passing thought with me was whether it would be possible, before mechanization completely overwhelms it, to set down in permanent literature, the romance of the true craftsman as exemplified by Mrs. Tooley and my wife's grandmother who condescended to come back to earth from her world of luxury when an extra special job needed the finest fingers in all of Coventry. Perhaps the job has been done, but if it hasn't I feel that in a few more years there will be no natural craftsmen alive to tell a part of their saga.

A. WYN WILLIAMS
New York Representative, *The Manchester Guardian*

## Mr. Lord's Page

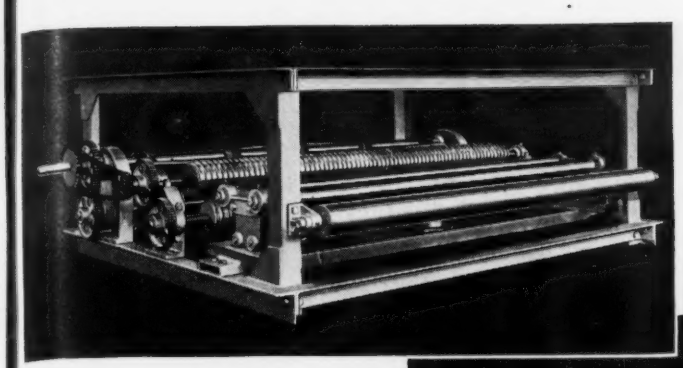
PHILADELPHIA, PA.

Editor, TEXTILE WORLD:

Would it be possible for us to obtain 125 reprints, suitable for posting, of page 6 (H. G. Lord's page), from February 1943, issue of TEXTILE WORLD?

Purpose:—To distribute to our membership for posting in their mills. We feel it would contribute effectively to the morale job needed among many mill operatives who do not realize they are "in the war effort."

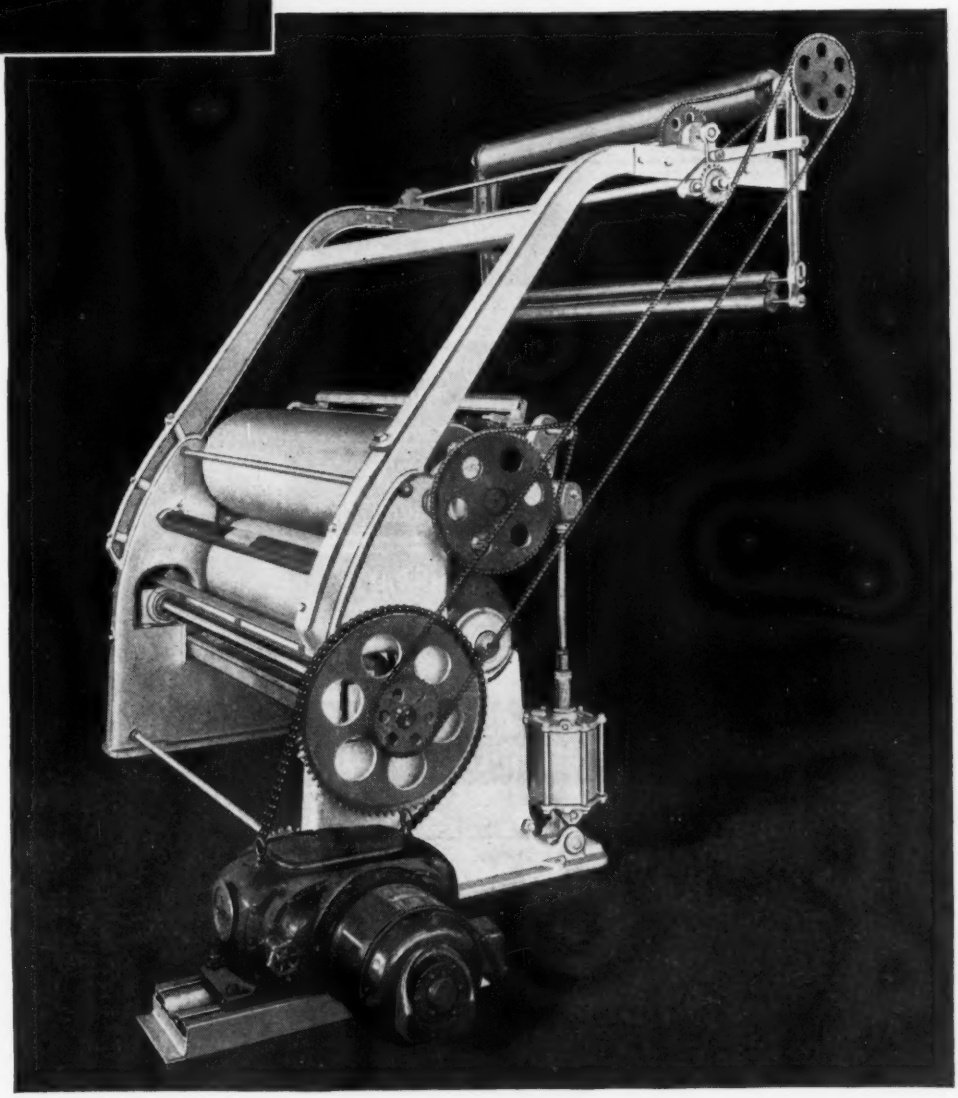
E. K. PIERSON
Philadelphia Textile Manufacturers Association



# THESE ARE THE UNITS FOR CONTINUOUSLY OPENING AND EXTRACTING CLOTH AT ANY REQUIRED PRODUCTION RATE

Above: *Hunter Ceiling Scutcher*

At right: *Hunter Model G Pneumatic Squeeze Rolls.*



PICTURED on this page are the new Hunter contributions to faster and continuous cloth opening and extracting—at any required speed and with a high percentage of moisture removed. With the Hunter Ceiling Scutcher and Hunter Model G Pneumatic Squeeze Rolls and variable speed control, the opening and extracting operation is continuous—with one man's labor, with only 7½ H.P.—and with extraction down to 50% to 60% on the bone dry basis.

The Hunter Scutcher and Model G Pneumatic Squeeze Rolls may also be put into a continuous range with the new Hunter Tenter or Carbonizing Dryers, which affords the mill continuous flow from the washers to the drying operation.

The fact that in a handful of years, American mills have invested over half a million dollars in Hunter Pneumatically Operated Squeeze Rolls, should encourage mills now using other methods of cloth extraction to investigate the savings possible for them. You are cordially invited to write to

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASSACHUSETTS

FOUNDED 1847

# "INDEX" To Better Quality Textiles

| | |
|---|---|
| FOR Dyeing, Flameproofing | USE SOLVAY AMMONIUM CHLORIDE |
| FOR Dyeing | USE SOLVAY CAUSTIC POTASH |
| FOR Dyeing, Hypochlorite bleaching, Kier boiling, Mercerizing, Neutralizing | USE SOLVAY CAUSTIC SODA |
| FOR Hypochlorite bleaching, Oriental rug finishing, Water conditioning | USE SOLVAY LIQUID CHLORINE |
| FOR Mothproofing | USE SOLVAY PARA-DICHLOROBENZENE |
| FOR Dyeing, Softening | USE SOLVAY POTASSIUM CARBONATE |
| FOR Acid neutralizing, Degumming, Fulling, Scouring, Soap building, Softening | USE SOLVAY SNOWFLAKE CRYSTALS |
| FOR Acid neutralizing, Fulling, Hypochlorite bleaching, Kier boiling, Scouring, Soap building, Water conditioning | USE SOLVAY SODA ASH |
| FOR Dyeing | USE SOLVAY SODIUM NITRITE |
| FOR Acid neutralizing, Degumming, Fulling, Scouring, Soap building, Softening | USE SOLVAY TEXTILE SODA |

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# NEWS ABOUT MEN

**William A. Julian,** for many years in the cotton-textile business in the vicinity of Gastonia and lately assistant treasurer of Firestone Cotton Mills, has joined Cramerton (N. C.) Mills as vice-president and member of the board. His principal duty will be to take charge of the raw cotton department of the mills. He is also member of the cotton firm of Julian & Morrison.

**William L. Pitcher** has been elected president of United Elastic Corp., Easthampton, Mass., succeeding the late Edward L. Shaw.

**Oscar A. Schwarcz** has resigned as vice-president and head of the woolen and worsted division of A. D. Juilliard & Co., New York. He has been with the organization for 52 years, starting as errand boy in 1891.

**H. C. Rothwell,** lately with Atlantic Products Corp., Trenton, N. J., has been named textile specialist for the Chattanooga area by the WPB.

**O. W. Roesing,** who recently joined the North Star Blanket Co., Minneapolis, Minn., is assistant to the president of that company, **W. G. Northrup.**

**Otis E. Johnson,** assistant treasurer of the five mills of the New England Industries with headquarters at Augusta, Maine, has resigned to become assistant treasurer of Verney-Brunswick Mills, Inc. His headquarters will be Manchester, N. H.

**Elmer W. Nye** and **J. W. Schenck** have been elected vice-presidents of the Consolidated Textile Co., New York. Mr. Nye will direct the selling and job-finishing branches of the Windsor Division. Mr. Schenck will head Windsor's production and manufacturing developments.

**Walter Dillard,** vice-president and general manager of New Braunfels (Texas) Textile Mills, is the newly elected president of the Texas State Manufacturers Association.

**A. G. Heinsohn, Jr.,** has been elected president of Cherokee Spinning Co., Knoxville, Tenn., and will continue as general manager. **Lester W. Deaver** succeeds Mr. Heinsohn as vice-president and continues as general superintendent. Mr. Heinsohn succeeds **Edward J. McMillan,** who remains a member of the company's board of directors.

MALCOLM E. CAMPBELL

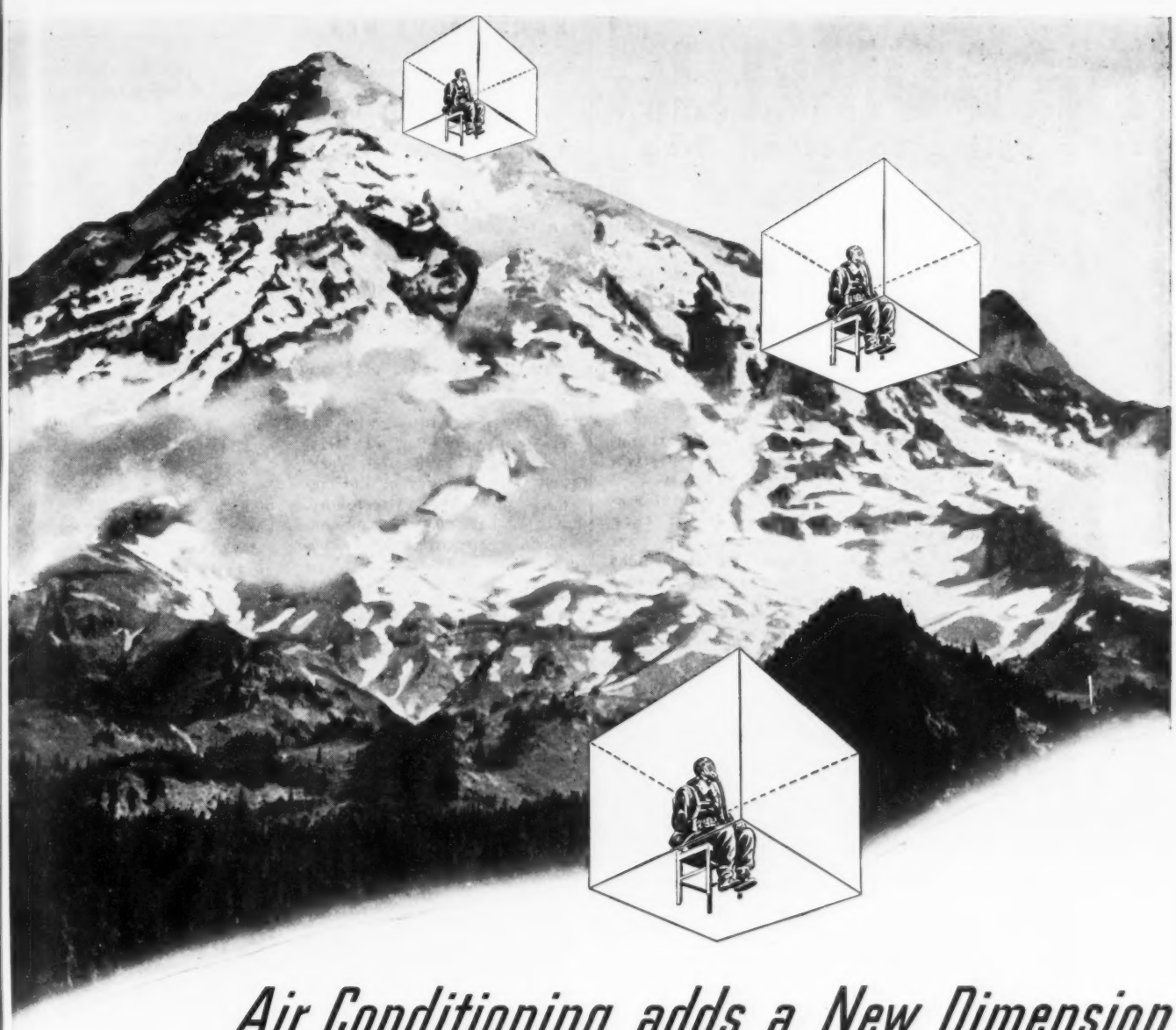
**Malcolm E. Campbell,** of Washington, D. C., joined the staff of Textile Research Institute, Inc., on April 1. For some years he has directed the technical research program of the Cotton and Fiber Branch of United States Department of Agriculture—covering work in the laboratories at Clemson College, Texas A. & M. College, Stoneville, Miss., and Washington, D. C. His new duties will include organization and supervision of applied and cooperative research activities, including important processing research projects—covering cotton, wool and synthetics—recently recommended by the Technical Research Committee of the Institute.

**Joseph H. Easley** and **William H. Grier** have been appointed assistant vice-presidents of Rock Hill Printing & Finishing Co., Rock Hill, S. C. Mr. Easley has been with the firm since 1929, lately as assistant general manager. Mr. Grier has been with firm since 1933 and is now plant superintendent.

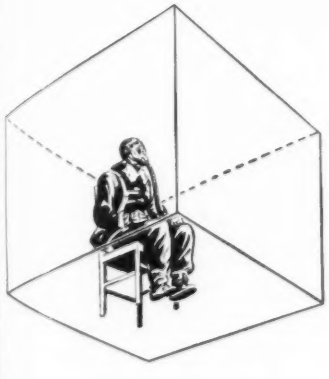
**A. R. Haller** has been made superintendent of Warren Woolen Co., Stafford Springs, Conn., succeeding **Max A. Merkel,** superintendent for the last eight years, who recently resigned.

**J. Edward Kale,** Lincolnton, N. C., has been elected president of Hampton Spinning Co., Clover, S. C. The other officers are: **R. B. King,** vice-president; **E. E. Mensel,** treasurer; **A. C. McConnell,** secretary, and **Charles C. Smith,** assistant secretary and treasurer.

**A. B. Hammond** has been elected vice-president and gen-



# Air Conditioning adds a New Dimension



Originally, people thought of air conditioning only in terms of *temperature.* It cooled the air on a warm day. Temperature was air conditioning's *first* dimension.

Then came a second dimension . . . *movement.* Air had to be moved . . . under control.

Then a third dimension . . . *humidity* . . . control of the amount of moisture in the air.

Then, air conditioning took on a fourth dimension . . . *dust exclusion.*

And now, air conditioning is cooperating in an important new field . . . controlled air *pressure.* This is needed for the testing of men and equipment under the conditions of stratosphere flying.

Today, air conditioning faithfully reproduces *exact climates* . . . from the parched heat of the Sahara to the frigid cold of Northern Russia. The equipment that does this must be more flexible, more compact than ever before . . . with precise control of temperature and humidity.

This equipment . . . from General Electric . . . speeds up America's war effort. When peace comes, this improved air conditioning will become available for many new uses.

Then, as now, look to General Electric as the outstanding supplier of up-to-date air conditioning and industrial refrigeration equipment of all kinds.

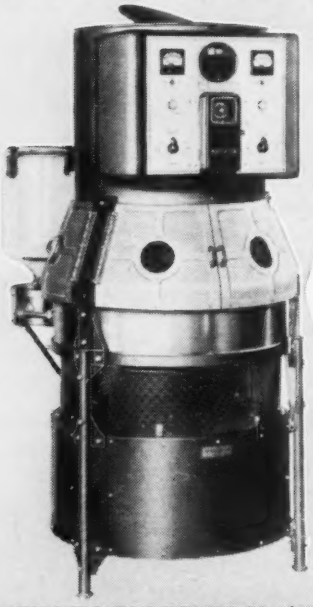
*Air Conditioning and Commercial Refrigeration Department, Division 434, General Electric Company, Bloomfield, New Jersey.*

*Air Conditioning by*

**GENERAL ELECTRIC**

# FADE-OMETER

**for accelerated color fading**



• Originated and made solely by Atlas. Used all over the world and accepted as the standard color testing machine by the textile industry for over a quarter of a century.

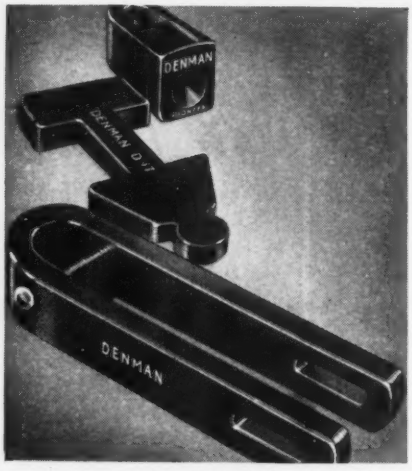
Specimens are rotated around the Atlas Enclosed Violet Carbon Arc—the closest approach to natural sunlight. Temperature automatically controlled. No loss of light intensity of arc during life of machine.

**ATLAS ELECTRIC DEVICES CO., 361 W. Superior Street, Chicago, Ill.**

# ATLAS-OMETERS

WEATHER-OMETER ★ LAUNDER-OMETER ★ FADE-OMETER



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PICKERS LUG STRAPS

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*Lowest Cost Per Loom Per Year*

## *The* Terrell Machine Co., *Inc.*

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E. W. S. Jasper, Inc., Elizabeth, N. J., Penn., N. Y. and N. J.
W. J. Westaway Co., Ltd., Hamilton & Montreal . . . Canada
Geo. Thomas & Co., Manchester, Eng. . . . European Agent


## NEWS ABOUT MEN

eral manager of Berryton (Ga.) Mills succeeding the late Dr. J. N. Cheney. **J. O. Dendy** formerly overseer of spinning has been promoted to superintendent.

**Wm. M. Nixon** has been elected president and treasurer of Atlanta (Ga.) Woolen Mills, succeeding his father, the late Vaughn Nixon. He had been associated with his father in the management of the mill since his graduation from the University of Pennsylvania in 1930.

**Edward F. Addis,** who was previously president of Meinhard, Greeff & Co., New York, and later treasurer of Burlington Mills Corp., Greensboro, N. C., has been named impartial chairman of the Textile Refinishers Association, New York.

**Gilbert Halbrook** has succeeded his father, **H. A. Halbrook** as president of Profile Mill, Jacksonville, Ala. The elder Halbrook, after 38 years on the job, decided to retire.

**William Loren Batt,** vice-chairman of the War Production Board and president of S K F Industries, Inc., Philadelphia, has been awarded the Bok Award—a medal and a $10,000 check—not only for his service to the Nation in leading industrial mobilization of the war, but as a citizen who performed the most distinguished service for Philadelphia in 1942.

**Karl B. Nixon,** for the last four years general superintendent of the Newnan (Ga.) Cotton Mills and with the company for 15 years, has become general manager.

**Robert A. Smith,** head of the Worsted Division of American Viscose Corp's. Sales Development Department, Marcus Hook, Pa., has been appointed head of the Woolen Division in addition. He will take over the work done by **Joseph A. Truitt,** formerly head of the Woolen and Industrial Divisions, who has been transferred to the company's War Procurement Department at Wilmington, Del. Mr. Smith will be assisted by **Robert D. Pickens,** of the faculty of the Philadelphia Textile School, who has been loaned to the American Viscose Corp. Howard E. Shearer, who was Mr. Truitt's assistant, has been appointed head of the Industrial Division.

**Richard J. Steffens** has become manufacturing executive for Monument Mills, Housatonic, Mass. He was president of the Boston Duck Co. and Bondsville Bleachery, liquidated some time ago.

**A. J. Mill, M. G. Baum** and **H. D. Mercer** have been promoted to second vice-presidents of Mill Factors Corp., New York.

**Harvey Willson,** who has represented the National Federation of Textiles in Washington for the last two years, is opening his own office there to represent individual firms and groups involving cooperation with the Government.

**Dr. Wanda K. Farr,** noted woman cellulose research worker has joined the Celanese Corp. of America, and is making her headquarters at the plant in Cumberland, Md. Dr. Farr was for some years with the Boyce Thompson Institute for Plant Research in Yonkers, N. Y., and more recently with American Cyanamid Corp. at Stamford, Conn.

**E. W. Freeze, Jr.,** now heads the Commonwealth Hosiery Co., Randleman and Ellerbe, N. C., succeeding his father the late E. W. Freeze.

**E. C. Lancaster, John A. Law, Jr.,** and **William S. Law** were elected to the board of directors of Saxon Mills, Spartanburg, S. C., last month.

**Thomas L. Zimmerman,** vice-president and treasurer of Union Mfg. Co., Frederick, Md., last month marked his 50th anniversary with this full-fashioned hosiery mill.

**James Cook** who has been general superintendent of Excelsior Woolen Mills, Union S. C., has retired from the textile business, having purchased a 200-acre farm near Cleveland, Tenn.

**Raymond E. Caffray** has returned to the Lawrence (Mass.) Print Works as general manager succeeding **Tracy A. Adams.** Mr. Caffray was general superintendent of that same plant for eight years when it operated as a branch of the Pacific Mills.

**Charles P. Beagan,** vice-president of Harte & Co., New York, will become a member of the company's board of directors on April 1. Harte & Co. is now engaged in producing processed fabrics for the military services.

**Philip L. McGinty,** who has been associated with Atlanta (Ga.) Woolen Mills for many years, has been elected secretary and assistant treasurer.

**A. C. Lineberger, Jr.,** an official of National Weaving

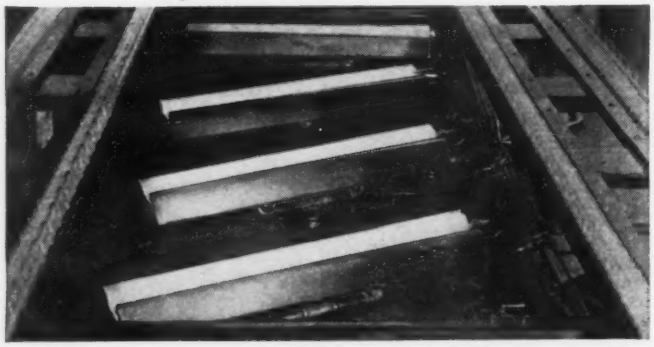
# TEXTILE BANKING COMPANY

*Factoring Service*

Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

# INFRA-RED DRYING
## *Speeds Production*



★ More and More textile manufacturers are installing the *new* CARBOMATIC RADIANT HEAT GENERATOR for drying and curing. They find that CARBOMATIC RADIANT HEAT GENERATORS . . .

★ Dry fabrics *quicker.*
★ Have easily adjusted, *automatically controlled* temperatures from 150° to 2200° F.
★ Greatly improve the *quality* of the finished product.
★ Are *more economical* than any other drying method . . . save labor costs and space.

*Write for our new booklet T-9*

**INFRA-RED DIVISION**
**CARBOMATIC CORPORATION**
ENGINEERS AND MFGRS. OF RADIANT HEAT BURNER EQUIPMENT
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Also H. W. Butterworth & Sons Co., Philadelphia, Pa.
Offices in Providence, R. I., and Charlotte, N. C.

## CONTINUOUS DEVELOPMENT IS THE PRICE OF LEADERSHIP

We still refuse to believe that the last word has been said in perfected loom strapping . . .
TEXTORIC, our newest development, comes via the plastic and chemical industries. It permits a dependable supply, uses no critical materials, and is a scientifically controlled product of absolute uniformity and great strength.

Our expert technicians will prepare samples or test orders to your own specific requirements. No limits on width, length, thickness or punching.

**W. D. DODENHOFF COMPANY**
619 RUTHERFORD STREET
GREENVILLE, SOUTH CAROLINA


## NEWS ABOUT MEN

Co., Belmont, N. C., of which his father is president, has severed his connection with these mills and sold his interest to Beaunit Mills, Inc.

**Dwight S. Williams,** New York, has taken over management of Hillsboro (N. H.) Hosiery Mills. He is a member of Dwight S. Williams Co., New York, which has been selling agent for Hillsboro and for the predecessor company the Contoocook Mills, for more than 30 years. **Eugene B. Williams** will be resident manager.

**Fanny Fern Fitzwater,** fashion authority, has joined the staff of Traphagen School of Fashion, New York, in the capacity of instructor in fashion illustration and editorial advisor to "Fashion Digest".

**J. F. Rafter,** for the last few years connected with Firestone research laboratory at Akron, O., has been appointed chief chemist of the Providence Braid Co., Pawtucket, R. I.

**Arthur J. Heinzmann** has joined American Viscose Corp., New York, as an assistant in the "Crown" Tested Department. He was formerly connected with the Lawrence Print Works as superintendent of rayon dyeing and finishing.

**Karl Reaber** has been promoted from the position of superintendent of weaving at Ashland Corp., Jewett City, Conn., to the position of plant superintendent, **John Renquin,** formerly one of the overseers of weaving, has been promoted to the position of superintendent of weaving. **Walter D. Smith** recently resigned as plant superintendent of Ashland to accept employment with Androscoggin Mills, Lewiston, Maine.

**P. Horace Boivin,** president of Granby Elastic Web Co. Ltd., Granby, Quebec, was recently re-elected mayor of that town by acclamation. Mayor Boivin is now starting his third term in that office.

**Preston F. Cox** is now assistant to general manager **Arthur D. Lund** at Esmond (R. I.) Mills. Mr. Cox had been head of the cost department of the Lonsdale Co. and instructor in the textiles and clothing department of Rhode Island School of Design. He will continue in the latter through the school year.

**Everett L. Amis,** treasurer of Dyersburg (Tenn.) Cotton Products, Inc., has resigned and will leave soon for an extended rest. He has been with this company 13 years.

**William S. Simpson** has been named director of personnel of the Raybestos Division of Raybestos-Manhattan, Inc., Stratford, Conn. Mr. Simpson will coordinate employment, health and safety problems.

**J. W. Childs,** sales manager for Fly Mfg. Co., Shelbyville, Tenn., has resigned and returned to Cincinnati, Ohio.

**Earl E. Bond** of Earl E. Bond, Inc., **Frank E. Lynch,** Boston, Mass., and **Morris David,** New York, N. Y., a gray goods manufacturer, have been elected to fill vacancies on the board of directors of Palmer Bros. Co., New London, Conn.

**D. K. Kuster** will join Hathaway Mfg. Co., New Bedford, Mass., in an executive capacity early in April. He resigned recently from the Kendall Mills having been with them since 1927, the last two years as manager of curtain goods sales.

**R. C. Harrington,** assistant superintendent of United States Rubber Co., Hogansville, Ga., has been transferred to New York, where he is now assistant superintendent of the textile division of the same company.

**L. E. Gatlin, Jr.,** Newberry, S. C., has been named head of the efficiency department of time study and findings with the Monarch group of mills. Mr. Gatlin recently completed a textile course at Clemson College, Clemson, S. C.

**L. W. Willis,** formerly with Pacific Mills, Columbia, S. C., is now overseer of weaving at Mary Leila Cotton Mill, Greensboro, Ga.

**Otto Zambona** has been made yarn superintendent of Neponset Woolen Mills, Canton, Mass. He recently resigned as designer for Sanford (Me.) Mills.

**John Smith,** at one time overseer of spinning at Pine Valley Mill, has been honored as the oldest man in Wilton, N. H. He is 92 years old.

**George Max, Jr.,** has been made superintendent at the Madison (Me.) Woolen Co.

**George Rice,** chief engineer of Pontiac (R. I.) plant of Fruit-of-the-Loom, Inc., has left that post to become master mechanic at the Kenyon (R. I.) Piece Dye Works.

**Harry A. Shealy,** night superintendent of Olympia plant of Pacific Mills, Columbia, S. C., has been promoted to superintendent of the company's Richland unit at Columbia.

Correct processing helped sell this cashmere sweater just as much as smartness of styling. For without correct processing there could have been no soft fleeciness of fabric. That's why leading mills, converters, finishers, and dyers invariably insist on Colgate-Palmolive-Peet high-quality processing agents. And remember—in spite of material and style changes that may result from the war, C.P.P. processing soaps and detergents are effective on any type of fabric.

Ask your local C.P.P. man for complete information on Colgate-Palmolive-Peet wetting, fulling, scouring and dispersing agents, or write to our Industrial Department at Jersey City, N. J.

Jersey City, New Jersey
Jeffersonville, Indiana

**COLGATE-PALMOLIVE-PEET CO.**

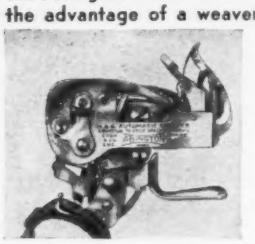
Kansas City, Kansas
Berkeley, California

COLGATE KWIKSOLV • COLGATE FORMULA 25 • COLGATE WHITE SOAP FLAKES • ARCTIC CRYSTAL FLAKES • BADGER FLAKES

Even green help get perfect, non-slip knots with the famous

ABINGTON WEAVER'S KNOTTER

The Abington Automatic Knotter is the ONLY knotter that combines the advantage of a weaver's knot with automatic scissor clipping.



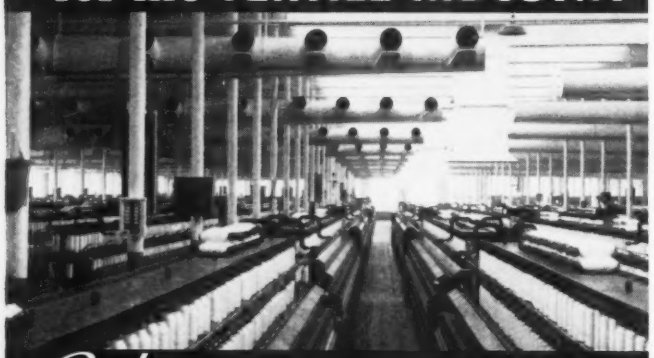
The tails can be made any length from 5/16" down to minus 1/16". Knots are so compact and tight as to be acceptable in thread and in yarns for rubber-coated fabrics where ordinary knots often cause blisters. Even learners do a speedy, perfect job with this Knotter, keeping production right up to the maximum.

REQUEST KNOTTER CATALOG

ABINGTON

ABINGTON TEXTILE MCHY. WKS., ABINGTON, MASS.
Vacuum Card Strippers – Yarn Dyeing Systems – Weaver's Knotters
OFFICES AT BOSTON, MASS. • CHARLOTTE, N. C.

~for the TEXTILE INDUSTRY



Bahnson HUMIDUCT

The modern system of positive lateral distribution of conditioned air in any desired form—hot, cold, humid, dry, cleaned or in any combination—automatically controlled.

Our textile experience and engineering skill are available for prompt service on existing equipment, and for planning expansion, or new installations for the future, or within priority limitations.

Bahnson System
AIR CONDITIONING ENGINEERS
THE BAHNSON CO. WINSTON-SALEM, N. C.

## NEWS ABOUT MEN

**M. H. Wolfe** has resigned from Martha Mills, Thomaston, Ga., and accepted position of superintendent of carding at Spring Cotton Mills, Lancaster, S. C.

**George A. Vosburgh** was recently given a dinner by more than 100 associates and friends following his resignation as superintendent of the Warren Fabrics Co., West Warren, Mass. He has become general superintendent for Parsons & Baker Co., Phoenixville, Pa.

**James C. Edwards, Jr.,** has resigned as superintendent of the mechanical department of the Chicopee Corp. of Georgia, Gainesville, Ga., and has become mechanical superintendent of Exposition Cotton Mills, Atlanta, Ga.

**C. V. Hudgens,** formerly assistant to superintendent of spinning (first shift), of the Oakland unit of Kendall Co., Newberry, S. C., has been transferred to the Thrift unit of the same company at Paw Creek, N. C., and promoted to superintendent of spinning.

**George E. Nichols** has become overseer in the Norwich, Conn., mill of American Woolen Co. He was formerly boss spinner of Gordon Woolen Mills, Newport, N. H.

**D. H. Terry,** formerly of Bessemer City, N. C., has resigned as superintendent of carding and spinning of Chadwick-Hoskins Co., Mill No. 2, Charlotte, N. C., and returned to a former position with Algodon Mills, Bessemer City, N. C.

**Wm. Meller, Jr.,** has become assistant superintendent of Excelsior Mills, Union, S. C. He was formerly connected with Cowan Mill, Lewiston, Maine.

**John D. Rollins,** formerly assistant to the superintendent of weaving of Springs Cotton Mills, Lancaster, S. C., has become head of vocational training at Riverside & Dan River Cotton Mills, Danville, Va.

**W. R. Connelly,** formerly associated with Hampton division of Pacific Mills, Columbia, S. C., has accepted position of superintendent of carding and spinning at Spindale (N. C.) Mills.

**J. H. Burgess,** formerly night superintendent of Marion (N. C.) Mfg. Co., and more recently with the Richland unit of Pacific Mills, Columbia, S. C., in a similar capacity, has accepted position of superintendent of Scottdale (Ga.) Mills.

**Lee Dearman** has accepted the position of overseer of carding and spinning at the No. 1 plant of Randolph Mills, Franklinville, N. C.

**W. D. Stegall** has resigned as superintendent of Superba Towel Co., Hawkinsville, Ga., and become manager of Albert Bartson, Inc., Charlotte, N. C., manufacturers of duck, upholstery and tapestry.

**H. Cleon Estes** has been appointed superintendent of Inman (S.C.) Cotton Mills, succeeding **M. C. Cottingham,** now serving as lieutenant overseas with the armed forces. Mr. Estes was promoted to his new position from that of assistant.

**W. T. Hunt** has become superintendent of Carter Mills, Lincolnton, N. C., succeeding **W. A. Hunt,** who is now a salesman for A. B. Carter, Inc., Gastonia, N. C. **W. T. Hunt** was formerly head of the carding and spinning departments of the same mill.

**H. E. Littlejohn,** formerly of Spartanburg, S. C., has become plant superintendent at S. Slater & Sons, Inc., Slater, S. C.

**L. E. Settlemyer** has been appointed assistant to overseer of weaving at No. 4 unit of Chadwick-Hoskins Co., Charlotte, N. C.

**Raymond L. Collett,** formerly with Lybrand, Ross Bros. & Montgomery, New York, a public accountant, has accepted a position with Judson Mills, Greenville, S. C., as comptroller.

**Cohen Howell** has been promoted to assistant to the overseer of weaving at Ottaray Mills, Union, S. C.

**Spencer Green** has been appointed general superintendent of Pierce Bros., Ltd., New Bedford, Mass. For a year he has been a Government textile inspector. He formerly was general superintendent at Soule Mill, New Bedford.

**Carl D. Welch,** overseer of carding at York (S. C.) Yarn Mills, has been promoted to assistant superintendent.

**V. J. Thompson,** formerly of Griffin, Ga., has accepted the position of superintendent of Laurens Cotton Mills.

**J. H. Styron** has been promoted to overseer of weaving, Mill No. 1, Chadwick-Hoskins Co., Charlotte, N. C. He succeeds **F. M. Fowler,** who has been made superintendent of Mill No. 3.

# PENN SALT
# CAUSTIC SODA

## *Prompt shipments in tank cars specially designed for fast, easy, safe unloading*

● Order your caustic soda from Penn Salt and enjoy the advantages of quick shipment, clean caustic and speedier handling

Penn Salt's special tank cars are built with protective lining, special draining plates and caustic-resistant valves and interior connections. Steam heating coils do *not* contact the caustic soda—eliminating possible contamination.

The improved, insulated design assures *fluid* caustic in cold weather. And the easily accessible fittings save unloading time and prevent waste. Furthermore, the dome safety platform and guardrailing protect your workmen.

Penn Salt caustic soda is available in tank car quantities as 50% and 72-73% solutions . . . as a solid in 750 lb. drums . . . or in flake form in 400 lb. and 125 lb. drums.

Technical help on any handling problem without obligation. Write for complete information about Penn Salt caustic soda.

**PENNSYLVANIA SALT**
MANUFACTURING COMPANY
*Chemicals*
1000 WIDENER BUILDING, PHILADELPHIA, PA.
New York • Chicago • St. Louis • Pittsburgh • Wyandotte • Tacoma

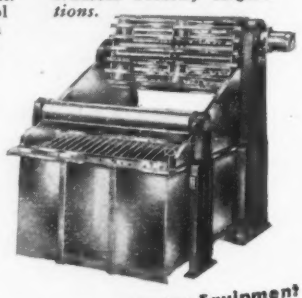
*To Textile Dyers Doing A War Job...*

**IN CLEANING STAINLESS STEEL EQUIPMENT AVOID MATERIALS THAT CAUSE CORROSION**

Do not use ordinary steel wool or steel brushes on stainless steel equipment. Steel particles rubbed off the steel wool or brushes may become imbedded in the stainless steel. The particles will rust and discolor the stainless steel surface and can be the focal point of serious corrosion.

You can avoid the contamination of dye solutions by using only stainless steel wool or brushes for cleaning. Watching details like this will help you keep your equipment in good working condition for your wartime assignment. When maintenance problems arise let us know about them. Perhaps one of our engineers can give you a "helpful maintenance" suggestion.

*All orders subject to Government Priority Regulations.*



★ Specialists in Manufacture of Stainless Steel Dyeing Equipment

**S. BLICKMAN, INC.**

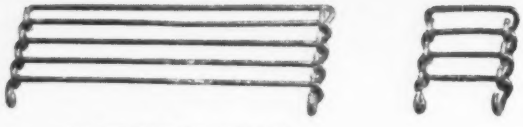
208 GREGORY AVE., WEEHAWKEN, N. J.

EST. 1889



*Opportunities...*

**TO IMPROVE YOUR PRODUCT AND SAVE YOUR MONEY...**



**NARROWING CHAIN**

Accurately made from high grade material—built to last and to hold its shape.

Send for bulletin giving full details on these and other products.

**SINKER HEAD SLOT CUTTERS**

The ideal tool for cleaning out slots in sinker and divider heads. Made in all gauges. Each one comes in a leather carrying case.

**THOMAS & SKINNER**
**STEEL PRODUCTS COMPANY**

1119 East 23rd Street — Indianapolis, Indiana




# Textile Men in Armed Services

**Ben P. Anderson,** lately head of the suitings division of Riverside & Dan River Cotton Mills, Danville, Va., is now second lieutenant in the Production Services Division, Quartermaster General's Office, Washington, D. C.

**Robert Kreisman,** superintendent of Bellefont Dyeing Corp., Cranston, R. I., has joined the army.

**J. W. Harrelson,** dean of administration, North Carolina State College, Raleigh, N. C., has been called into active duty from his reserve status with rank of colonel. He is assigned to the training section of the Fourth Service Command.

**Arthur Saul,** who has been with Bruns-Nordeman Co., New York, since 1936, has been inducted into the army.

**Ward Cheney,** of Cheney Bros., now a lieutenant-commander in U. S. Naval Aviation Combat Intelligence Service, is on active duty in the Solomons where he has been since August, 1942.

**Charles L. Lynn,** former cashier of the Fulton (N. Y.) plant of the American Woolen Co., is now associated with the Supply Corps of the Navy and has been promoted from the rank of lieutenant-commander to commander.

**Jerome Bolger,** formerly of Cyril Johnson Woolen Co., Stafford Springs, Conn., who has been with the Coast Guard for some months, has been promoted to the rank of ensign. He is attached to the Coast Guard Clothing Depot, New York.

**George Sherman,** formerly associated with Sherman R. Leeds & Co., New York, has been appointed petty officer of the Coast Guard.

**Harry D. Latting,** formerly assistant sales promotion manager of A. & M. Karagheusian, Inc., New York, has been promoted from lieutenant to captain in the Army Air Corps. Captain Latting is on duty in England.

**Arthur Eichler,** formerly production manager of Desley Fabrics Division of J. H. Thorpe & Co., New York, and lately a captain in Quartermaster Corps attached to the Jersey City Depot, has been promoted to rank of major.

LT. W. A. NEWELL

**William Andrews Newell,** honor student at Lowell Textile Institute, 1940-41, and son of Robert Newell, cloth room overseer and technical advisor of Ashland Corp., Jewett City, Conn., has been graduated from officers' training school and is now a first lieutenant at Fort Bragg, N. C. He is the author of the article on weave-room supply system published in this issue of TEXTILE WORLD.

**David P. O'Connor, Jr.,** son of the vice-president and general sales manager of Penick & Ford, Ltd., New York, has been commissioned a second lieutenant in the United States Army's Mobile Infantry.

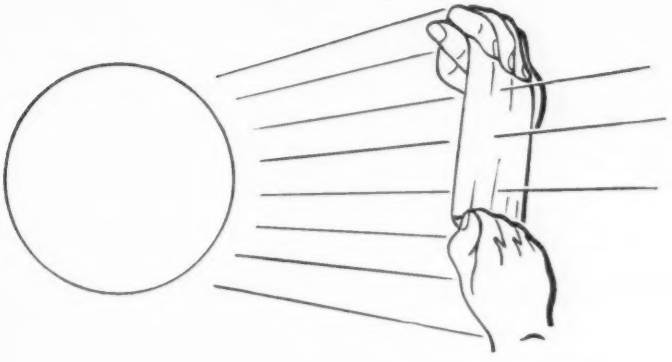
**W. R. Slimback,** vice-president of Kearny (N. J.) Mfg. Co., has joined the armed services, and **George Westwater,** chief engineer of the company since 1934, has been appointed vice-president succeeding him.

**Charles A. Cannon, Jr.,** son of the president of Cannon Mills Co., Kannapolis, N. C., reported to San Antonio, Texas, on March 9 to begin training as an Army air cadet.

**Gordon Hope,** who has represented A. M. Tenney Associates, New York, in Greensboro, N. C., and is a past-president of the North Carolina Yarn Association recently graduated from Naval Training School at Princeton with rank of lieutenant (j.g.)

**W. B. Johnson, Jr.,** formerly an analyst for Roanoke, Va., unit of American Viscose Corp., now serving in the Army, has been promoted to the grade of lieutenant-colonel.

# This unique property makes ETHOCEL more useful



TOUGHNESS

RESISTANCE TO HEAT

STABILITY TO LIGHT

STABILITY TO LIGHT

LOW SPECIFIC GRAVITY

COMPATIBILITY WITH MOST PLASTICIZERS AND RESINS

LOW FLAMMABILITY

SOLUBILITY IN LOW COST SOLVENTS

FLEXIBILITY AT LOW TEMPERATURES

ETHOCEL is a clear, colorless material which does not discolor when exposed to ultra-violet light. Also, it does not promote the discoloration of resins and plasticizers incorporated in ETHOCEL formulations. Phosphate plasticizers may be used with ETHOCEL to make permanently white coatings.

In addition to excellent light stability, ETHOCEL is unusually transparent to radiation ranging from ultra-violet through the infra-red. It transmits 90% of the light rays in the visible spectrum and will pass ultra-violet rays down to wave lengths of about 2200 A°.

These factors make ETHOCEL extremely useful in applications requiring stability to light.

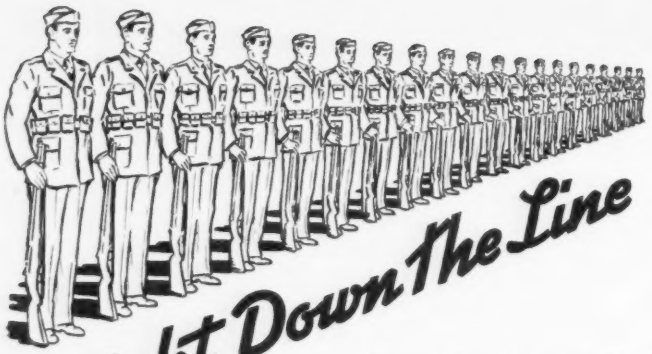
THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN • New York • St. Louis • Chicago • Houston • San Francisco • Los Angeles • Seattle

# ETHOCEL

(DOW ETHYLCELLULOSE)

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY



*Right Down The Line*

If you have to meet Army Quartermaster Department specifications your fabrics will show a big improvement right down the line if you use

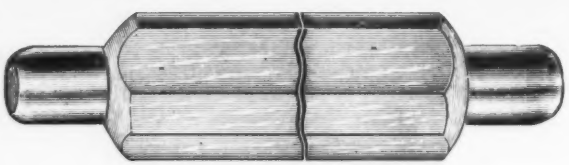
**DRUMMOND SOAP**

It's a high-body product of low alkali content . . . No filler of any kind . . . A high binding quality that results in minimum flocking . . . Saves on steam and water because it rinses easily and completely . . . Better fulling and scouring . . . Leaves fabric perfectly clean with softest feel, better hand, brighter colors and whiter whites . . . Want to try it? Just write us today for a free working sample and test Drummond Soap on your own goods.

*If you can't shoot Japs shoot the works* — BUY MORE BONDS

**Standard Soap co. of camden**

Charlotte, N. C. CATO M. LITTLETON 426 PARK TERRACE • 205 South 2nd St. Camden, N. J. • Woonsocket, R. I. G. TANGUAY 281 HARRIS AVE.



**DYE STICKS**

Since 1900 we have made high quality true-form oven-seasoned dye sticks for all standard machines. We can fill your needs today to meet any requirement. Write

**FRANK BAILEY Cedar Brook, N. J**

*Simplified* **DESIGN**
*Flexible* **POWER**
*Better* **EVAPORATION**
*More sensitive* **CONTROL**

**SOUTHWORTH HUMIDIFIER**

Experienced textile men who know the merits of previous models of Southworth Humidifiers have found improvements in Model D that make it even more reliable and efficient.
Extreme sensitivity of control, and an "airplane propeller" type fan for greater evaporation, are two outstanding features.

**NOTE**

This advertisement is to remind you to include Southworth Humidifiers in your after-the-war plans. Frankly, we are 100% on war work and cannot make humidifiers at the present time.

THE SOUTHWORTH MACHINE CO.
PORTLAND MAINE


## NEWS ABOUT MEN

**Dale L. Merritt,** formerly with Seminole Mfg. Co., Columbus, Miss., has been commissioned lieutenant in Army Air Corps and is stationed at Oklahoma City, Okla.

**Leo H. Crosson,** associated with Charlotte (N. C.) Chemical Laboratories, now serving in the Army, who has been stationed in Washington, D. C., has been promoted to captain.

**Dial F. Sweeny,** Greenville, S. C., has been promoted from second lieutenant to first lieutenant in the Quartermaster Corps. He is adjutant of the 2nd Battalion, 13th Regiment, in Camp Lee's Quartermaster Replacement Training Center. He was formerly sales manager of the textile department of Mitchell & Smith, Inc.

**Joseph M. Ryan,** recently Greenville, S. C., representative of John J. Ryan & Sons, Hebronville, Mass., has been commissioned lieutenant in Navy. He is located in Atlanta as inspector of naval material, Incentive Division.

**Charles E. New,** formerly an official of Judson Mills, Greenville, S. C., is now stationed in New York as major in the Army and is attending New York University, where he is taking special courses.

**E. S. Nicholas,** formerly an official of Abbeville, (S. C.) Cotton Mills before entering the Navy, who has been located at Pensacola, Fla., has been transferred to Norfolk, Va., as lieutenant (j.g.)

**W. H. Labouisse,** Charlotte, N. C., cotton factor, and veteran of the First World War, has gone to Fort Eustis, Va., to re-enter the service as a first lieutenant in the anti-aircraft section of the coast artillery.

**William Sibley Law,** formerly assistant superintendent of Saxon Mills, Spartanburg, S. C., is now an instructor in the Army Air Corps.

**Miss Oulda Brooks,** who has held an important position with Claussner Hosiery Co., Paducah, Ky., for six years, has reported for duty with the WAACs at Fort Oglethorpe, Ga.

**John Learned,** superintendent of piece dyeing, printing and finishing departments of Cheney Brothers, South Manchester, Conn., has been commissioned a lieutenant in the Navy. He will take a training course at Quonset Point, R. I.

**John Law, Jr.,** Spartanburg, S. C., for many years in charge of payrolls and shipping department of Saxon Mills, Spartanburg, is now a junior lieutenant in the U. S. Navy.

# Obituary

**Abbott P. Smith,** 89, long prominent in the textile industry of New Bedford, Mass., died March 19. He was for many years a trustee of New Bedford Textile School and president of its board for eight years. He was identified with organizing and building a number of cotton mills including Soule, Butler, Kilburn, Taber, and Quissett. He was president of the New Bedford Storage Warehouse at the time of his death.

**George C. Hardy,** 72, of Terhune, Yereance & Wolff, New York, died last month. He had been with the firm for 32 years.

**E. W. Freeze, Sr.,** pioneer hosiery manufacturer in the vicinity of High Point, N. C., died March 6. He was president of Commonwealth Hosiery Co.

**William Fleming Rich,** 81, president of Woolrich Woolen Mills and vice-president of Pearce Mfg. Co., Williamsport, Pa., died March 9. He had been engaged in the woolen trade for 60 years.

**Francis C. Luce,** 45, vice-president, general manager and director of Cyril Johnson Woolen Co., Stafford Springs, Conn., died March 27. He was a director of the National Association of Wool Manufacturers.

**A. W. Buhlmann,** 62, who retired in 1938 after being for many years prominent as an importer of textile machinery in the United States, died at Los Angeles, Calif., early last month. He was born in Switzerland and came to this country in 1903. He brought in blanket nappers, German plush looms, Swiss jiggs, Polish cards, etc. He exported American hosiery boarding machines.

**Carl Vetter,** 75, second vice-president of M. T. Stevens & Sons Co., North Andover, Mass., died March 16. He had previ-

# NOPCO helps keep 'em DRY!

O. W. I. PHOTO

THERE are many things to keep dry if our armed forces are to stay fit and trim. Nopco water repellents are used extensively on such important field equipment as sleeping bags, tents, uniforms, netting for jungle hammocks, webbing of all kinds, and other material that must be rendered water repellent and mildewproof.

Nopco offers its long experience in this field to finishing plants engaged in war production, or civilian work. Is *your* plant faced with weather-proofing problems? Why not let Nopco research chemists lend a hand in their solution? They'll work with you gladly. Write today to the nearest Nopco office for further information.

**There's a Nopco Water Repellent Agent for Every Requirement**

**NOPCO ATO** — Straight water repellent for use in aqueous solution.

**NOPCO 1931-B** — Concentrated water repellent to be used in aqueous solution.

**NOPCO 1931-C** — Water repellent with copper stearate to be used in aqueous solution. Mildewproof.

**NOPCO 1931-M** — Water repellent with Dowicide. To be used in aqueous solution. Mildewproof.

**NOPCO EWB** — Water repellent with Pentachlorophenol. To be used in aqueous solution. Mildewproof.

NOPCO

REG. U.S. PAT. OFF.

"EVOLVED THRU RESEARCH"

**Water Repellent Agents**

## NATIONAL OIL PRODUCTS COMPANY

BOSTON CHICAGO **HARRISON, NEW JERSEY** CEDARTOWN, GA. RICHMOND, CAL.

WHITMAN YARNS

WORSTED • COTTON • SPUN RAYON

ARLINGTON MILLS
LAWRENCE, MASS.

•

MONOMAC SPINNING CO.
LAWRENCE, MASS.

•

NONQUITT MILLS
NEW BEDFORD, MASS.

WILLIAM WHITMAN COMPANY, INC.
NEW YORK BOSTON PHILADELPHIA CHARLOTTE

Testing Pre-solves Many Problems

The use of *Scott Testers speeds and safeguards purchasing, research and production. 60 models for tensile, hysteresis, burst. flexing, crepeage, twist, adhesion, etc.

SCOTT TESTERS

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HENRY L. SCOTT CO. 95 Blackstone St. Providence, R. I.

PENETRANTS • DETERGENTS
REPELLENTS • SOFTENERS
FINISHES

BURKART-SCHIER CHEMICAL CO.
CHATTANOOGA, TENNESSEE

## NEWS ABOUT MEN

ously been general manager for 36 years.

**William D. Weimar,** 73, owner of a cotton-rayon mill bearing his name in Philadelphia, died recently.

**James E. Monks,** 60, assistant treasurer and a director of Shawmut Mills, Fall River, Mass., died April 5.

**James Shanks,** a representative of Morningstar, Nicol Co., New York, died last month.

**J. T. Prevette,** 58, vice-president of Gordon Spinning Co., North Wilkesboro, N. C., died March 27.

**Max W. Babb,** 68, chairman of the board of Allis-Chalmers Mfg. Co., died March 13 in Milwaukee after an illness of several weeks. Mr. Babb had been chairman since January, 1942, and the company's president for 10 years prior to that. He joined the company in 1904.

**Robert M. McCain,** 68, proprietor of McCain Hosiery Co., Reading, Pa., died recently.

**Arthur Lester Spicer,** 61, Stafford Springs, Conn., a one-time thread manufacturer at Willington, died suddenly Feb. 24. In 1930 he established Spicer Thread, Inc., which had offices in West Hartford.

**Julien Wood,** 79, Edenton, N. C., one of the organizers of the Edenton Cotton Mills, and president of the Bank of Edenton since its establishment in 1894, died at his home March 17.

**Samuel W. Bridges,** 69, Boston (Mass.) wool importer for 35 years, died Feb. 28. He was president of S. W. Bridges & Co., and from 1915 to 1920 he served as president of the China-American Trading Co.

**J. W. Gardner,** 80, associated with Gardner-Denver Co., Quincy, Ill., from 1881 until his retirement several years ago, and for a long period head of that company, died recently.

**Alfred Grimshaw,** 83, for some years member of the old silk firm of Grimshaw Bros., Reading, Pa., and Paterson, N. J., died recently.

**Fred E. Durst,** senior vice-president and general manager of Commerce (Ga.) Mfg. Co., died recently.

**Frank K. Moss,** lieutenant-commander, U.S.N.R., 44, for 20 years with General Elertric Co. at Nela Park, Cleveland, died recently in the U. S. Naval Hospital at Bethesda, Maryland. Lieut. Commander Moss entered the service last September.

**Nathan Fountain Leake,** 91, long associated with the Charlottesville (Va.) Woolen Mills and one of the city's oldest residents, died recently.

**Lawrence A. Adams,** for a number of years cotton buyer and later office manager of Locke Cotton Mills, Concord, N. C., until his retirement several years ago, died recently.

**H. W. Moseley,** 71, for 20 years manager of Victor-Monaghan Co., Greenville, S. C., died March 6.

**Harry M. Freeman,** 75, of Lebanon, Tenn., for several years manager of Lebanon Woolen Mills, died recently.

**Thomas C. Davis,** 36, salesman with the Charlotte (N. C.) branch of Stein, Hall & Co. for 13 years, died March 1 in a Charlotte hospital.

**John W. Savage,** 49, New England representative of Thomas L. Leedom Co., New York, died at Boston, March 15.

**Martin Schiff,** chief engineer of Century Electric Co. in St. Louis, died suddenly on Feb. 15.

**Lewis P. Gove,** 51, resident engineer for Mutual Boiler Insurance Co., in the New York office, died suddenly at Beacon, N. Y., on March 6, following completion of an inspection task in an industrial steam plant.

**James Walton Bost,** 60, formerly superintendent of Grace Mills, Rutherfordton, N. C., and Stonecutter Mills, Spindale, N. C., died recently.

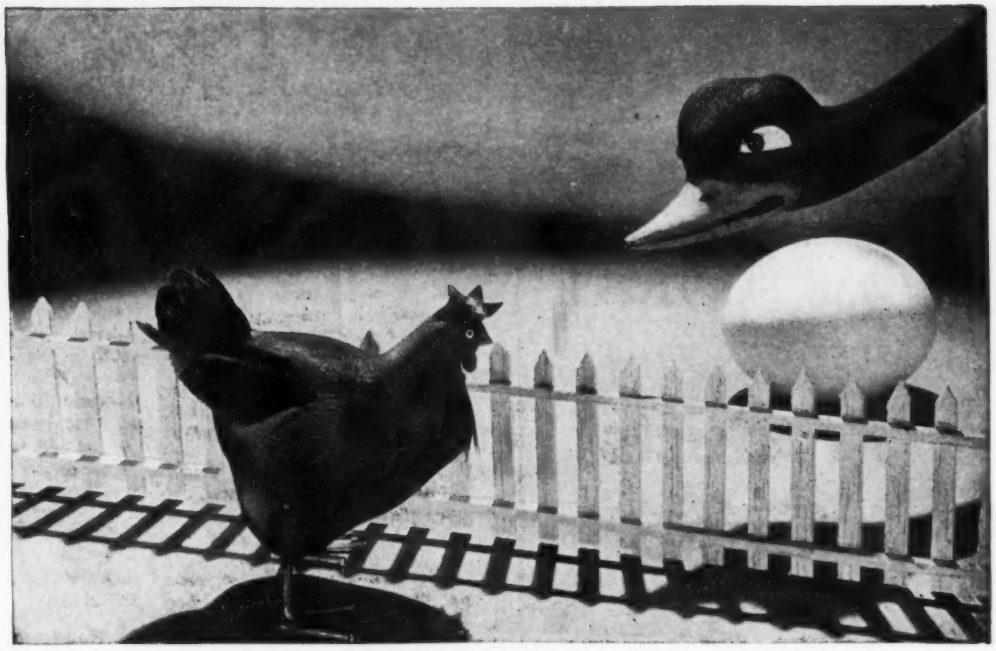
**W. N. Kelley,** 86, former superintendent of Bedford Woolen Mills, New London, near Bedford, Va., died March 17.

**J. Harvey Baker, Sr.,** 64, for more than 27 years superintendent of Fulton Bag & Cotton Mills, Atlanta, Ga., until his retirement several years ago, died March 15.

**Benjamin A. K. Eberhart,** 68, foreman of knitting department of Laurel Hosiery Co., West Reading, Pa., died recently.

**Arthur E. Detsch,** 52, a foreman at Glenside Dye Works, Reading, Pa., died recently.

**Erich Saul, Jr.,** 38, died while serving as corporal with the 139th Service Unit, Fort Monroe, Va. He was formerly with the Wyomissing Industries, Reading, Pa.



# *Look what they're doing*
# NEXT DOOR!

WIDE-AWAKE woolen and worsted mills are rapidly adopting LANAMYL for Warp Sizing! Here are a few of the reasons:

Strong, Smooth Film-Forming — *Improves Weaving.*
Controlled Viscosity — *Uniform Sizing.*
Slow-Congealing — *Aids Penetration.*
Quick-Cooking — *20 to 30 Minutes.*
Domestic Starch Base — *No scarcity.*
Economical.

Our Textile Chemists will gladly tell you more about how LANAMYL will help you produce superior warps.

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# TEXTILE MILL NEWS

## Cotton Mill News

**Adams Net & Twine Corp.,** Chicago, Ill., has been chartered with capital of $350,000, to manufacture cotton netting and allied products. It is understood new company will be affiliated with organization of similar name at St. Louis, Mo. It is represented by Cameron, Heath & Burry, 209 South LaSalle St., Chicago, attorneys.

**Bell Thread Co., Ltd.,** Hamilton, Ont., has preliminary plans under way for new one-story addition to mill.

**Nashawena Mills** reports net profit, after deductions, for 1942 of $349,307 compared with $330,876 for 1941.

**New England Industries, Inc.** (controlling five Maine textile mills), reports net profit for 1942 of $1,438,975 compared with $1,979,669 for 1941.

**Ozark Fabrics Corp.,** Springfield, Mo., recently organized, is said to be planning early operation of new mill for the production of cotton goods of various kinds. Warren M. Turner, 909 Woodruff Bldg., Springfield, is company representative.

**Pacific Mills** reports net profit for 1942 (after deductions) of $2,200,995 compared with $2,696,750 for 1941. Sales for 1942 were $84,154,760, against $69,604,071 in 1941. The Lyman, S. C. unit of Pacific has awarded contract to C. M. Guest & Sons, Anderson, S. C., for construction of a new filter plant to cost about $125,000.

**Rhyne-Houser Mfg. Co.,** Cherryville, N. C., has constructed a one-story building to be used as a community house for operatives and their families.

**River Mills Properties, Inc.,** Globe Mills Ave., Fall River, Mass., recently incorporated with capital of 1000 shares of stock, no par value, will be identified with the River Mills, Inc., same address, holding the real estate interests of that company. I. S. Levin is president; Lester Bakst is treasurer.

**Tallassee** (Ala.) **Mills,** a division of Mount Vernon-Woodberry Mills, Inc., have completed a testing and control laboratory.

**Worth Mills, Inc.,** Fort Worth, Tex.—Mill of this company, recently closed down, has been purchased by Firestone Tire & Rubber Co., Akron, Ohio, which will resume operations at early date. Plant will be continutd as heretofore for production of tire fabrics. Worth company, after operations for about 19 years, is being liquidated.

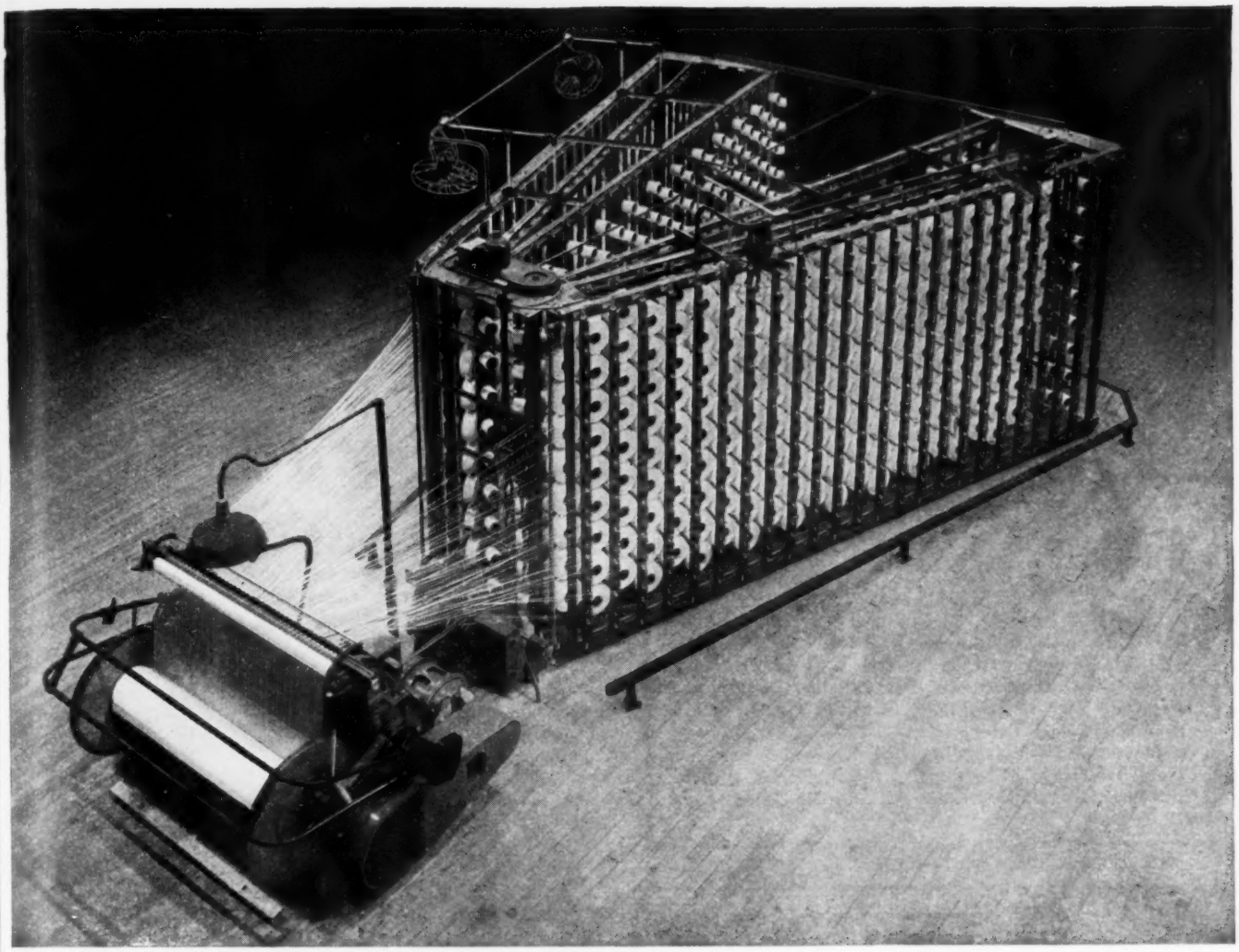
## Wool Mill News

**American Hair & Felt Co.,** Chicago, reports net profit for 1942 of $419,424 on net sales of $7,635,192.

**Hockanum Mills,** Rockville, Conn., are completing conversion of power house at plant from oil to coal fuel, with installation of grates and other equipment.

**Holliday Woolen Mills,** Bloomsburg, Pa., was destroyed by fire several months ago. The operator, Norris L. Holliday, has bought the former Caswell Woolen Mill, also at

GAFFNEY (S. C.) MFG. CO.'S new office building, which was opened last month. The building includes shipping, payroll, and cotton departments that comprise the central office, the production department, personnel department, clinic, and executive offices. An interesting feature is a meeting room large enough to sit 50 people, which adjoins the superintendent's office. Walter S. Montgomery is treasurer of this company.



# Better Beams—at Half a Mile a Minute!

THE Barber-Colman Super-Speed warper winds yarn on the beam firmly and uniformly at the rate of 900 yards a minute, which is 30.7 miles per hour — but that's only *part* of the story. Warping, of itself, does not *add* anything to the yarn, either in twist or condition but, unless it is done right, it can seriously *reduce* the yarn's natural elasticity. Because the warping adds nothing, but only puts the yarn on a proper beam for slashing or weaving, it must also be done as *economically* as possible. The Barber-Colman Super-Speed Warper meets these conditions. Elasticity of the yarn is preserved to the highest possible degree, because it is subject only to air friction. The high operating speed means high production per operator and per machine. In addition, the special creel with traverseable banks of cheese holders helps reduce change time, and a special comb and drop wires reduce creeling-in time. These and various other mechanical features all combine to insure maximum production with minimum effort.

## For Example . . .

In a prominent coarse goods mill, where Barber-Colman Spoolers and Warpers are in use, the following production is obtained:

| | |
|---|---|
| Count | 9.5s |
| Ends on Beam | 292 |
| Yardage on Beam | 18,000 yds. |
| Net Wgt. of Full Beam, | 659 lbs. |
| Beams per Warper per 24-hour Day | 29 |

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • TWISTER CREELS • MOISTURE CONTENT CONTROLS

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**FUNGISTATIC—BACTERIOSTATIC WATER REPELLENTS**

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A significant new development offering a single bath treatment, water or solvent soluble, for *mildewproofing and water repellency*. Meet all applicable Government specifications. Non toxic under intended conditions of use, may be applied to wide variety of fabrics. Very attractively priced. Inquiries invited from Army Contractors.

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## When You Change Your Address . .

It will help us keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address.

A penny postcard will do—but please indicate your *old* and *new* address, and any new company connection or position.

**TEXTILE WORLD**

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Bloomsburg, and put same into production.

**Milburn Mills, Inc.,** 145 Sixth Ave., New York, N. Y., will operate a mill in that State, exact location temporarily withheld, for the Government, which will provide a fund of $90,000 through Defense Plant Corp., Washington.

**Pilgrim Wool Co., Inc.,** 176 Federal St., Boston, Mass., operating a wool and wool substitute processing and sorting mill at Manchester, N. H., has acquired a closed plant formerly operated by U. S. Bobbin & Shuttle Co. at Goffstown, near Manchester, and will convert for new mill. Present Manchester mill will be removed to new location, where production will be concentrated in future. Officers of the company are: President, Glenn O'Roak, Waban, Mass.; Dagfin H. Rasmussen, Goffstown.

**Tilton** (N. H.) **Worsted Mills, Inc.,** have been reorganized. Ruel E. Heywood, who has been treasurer and general manager for the last three years, has resigned and severed his financial connection with the firm. L. W. Gile of Boston has been elected president and Samuel Fleischer of Boston, treasurer. Judge John W. Crawford, president for the last several years, has been elected vice-president. The main plant of the firm in Northfield will be managed by Lawrence Gilman, while the Laconia plant will continue under the management of Judge Crawford. The company makes gabardine and employs 200.

**Wanskuck Co.,** Providence, R. I., has awarded general contract to Rowley Construction Co., Providence, for addition to boiler plant at mill. Increased capacity will be carried out. Henry Fales, Providence, is architect.

**Wilton** (Maine) **Woolen Co.** has changed ownership, a new company being formed under the same name. Earl B. Foss, vice-president of the old firm, is president. Roy P. Gifford, was assistant treasurer and is now treasurer.

## Rayon Mill News

**Celanese Corp. of America** reports net profit, after charges, for 1942 of $7,098,511 compared with $7,105,685 for 1941. Sales in 1942 at $86,145,992 were up 38.3% from 1941 and set a high record for the company.

**Columbus** (N. C.) **Mills, Inc.,** newly organized, will take over the old Katterman & Mitchell weaving plant in that place. It will begin operations soon. W. S. Green, M. R. McCowan, and J. T. Arledge, all of Tryon, N. C., were the incorporators. One hundred operatives will be employed for full operations.

**Hartford Rayon Corp.** reports net profit, after deductions, for 1942 of $117,213 compared with $151,161 for 1941.

**Skenandoa Rayon Corp.** reports net profit for 1942 of $361,445 compared with $402,262 in 1941.

**Tubize Chatillon Corp.** reports net profit after all charges for 1942 of $1,405,907 compared with $1,393,638 for 1941. Net sales were up 27%.

**Waumbec Mills,** Manchester, N. H., has bought the 5-story mill it had previously been renting in the Amoskeag group.

## Knitting Mill News

**Arcadia Knitting Mills, Inc.,** Allentown, Pa., have concluded negotiations with Defense Plant Corp., Washington, D. C., Federal agency, for the sale of its mill and real estate for a reported consideration of $1,332,500, including all machinery and equipment. Government will use the property. It will be occupied by the Mack International Motor Truck Co. **Princeton Knitting Mills, Inc.,** Watertown, Conn., has purchased Arcadia's equipment. Nearly 1,500 knitting machines and 900 winders are included. The total will probably make Princeton the largest knitting mill in the country. Arcadia has opened an office in Allentown and may resume business.

**Bristol Knitting Mills,** on the Tennessee-Virginia border city of Bristol, was closed in March. Sweat shirts and underwear have been manufactured. J. A. Firsching, Jr., Utica, N. Y., is selling the machinery. It is understood that the buildings will not be sold.

**Billie Knitwear, Inc.,** 135 West 36th St., New York, N. Y., has leased space in building at 16 West 36th St., and will remove to that location, increasing present production facilities.

**A. Phillip Goldsmith** and associates have acquired a substantial share of stock in the **Diamond Full-Fashioned Hosiery Co.,** High Point, N. C.

**C. E. Foster Hosiery Mill,** Shelby, N. C., a newly organ-

# VIEW FROM A HOSIERY BUYER'S WINDOW

## ...AFTER THE WAR

There will be no shortage of yarn, no shortage of rubber, and—of this you may be sure in the buyer's market that will follow the war—no shortage of *competition*. Consumer demand and business enterprise will be "rarin' to go." Meantime, the war is telescoping years of progress into months. Each new style development and manufacturing method must be weighed for its possible effect on future business operations. Particularly is this true in the hosiery industry, if the new demands after Victory are to be met without false starts and wasted time.

For one thing is certain... the hosiery industry will not return to where it left off before the war began. The buying public has shown unusual interest in the new hosiery developments of wartime. Of special significance are the many fresh fashion trends that have been inspired by the industry's ingenuity with the yarns available, many of which are able to stand on their own merits quite apart from the war's influence.

These all represent opportunities for post-war business—but opportunities that must be *planned* for and realized through pointed action. Merely *thinking* about the future is not enough. Far-sighted manufacturers who want to make the most of knowledge, techniques and skills developed by war production will begin now assembling data and information which will enable them to act quickly, and be in a good competitive position, just as soon as the war is over.

Obviously, the right knitting equipment—machinery designed to meet the new needs when the time comes—is of first importance in any program of future planning. Here at Scott & Williams, we have been setting our sights, so far as we can look ahead, in anticipation of the conditions that will prevail in peace. Why not make an early discussion with us your next step in post-war business planning?

The high efficiency of Scott & Williams knitting machines can *only* be maintained by using genuine S & W knitting machine replacement parts. You can count on prompt delivery, too, from S & W stockrooms at Laconia. Teletype service is free from our New York and High Point offices.

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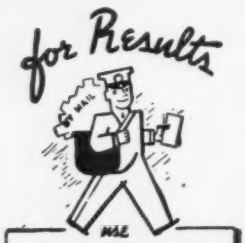


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NOVELTY-YARNS For WEAVERS-KNITTERS

MONTGOMERY

WINDSOR LOCKS, CONN.

Designers and Spinners of Novelty Yarns




ized mill, has begun operations in a recently acquired building. Machinery set-up includes 16 knitting machines and 40 loopers.

**Garrett Knitwear, Inc.,** New York, N. Y., recently organized, care of Max J. Lovell, 276 Fifth Ave., attorney and representative, plans operation of a mill.

**Glen Holt Hosiery Mill, Inc.,** Yanceyville, N. C., newly organized for manufacture of women's full-fashioned hosiery, has gotten into operations. The company is headed by A. Glenn Holt, president and treasurer of the Caswell Knitting Mills, Inc., Yanceyville.

**Holeproof Hosiery Co.,** Milwaukee, Wis., reports net income of $336,497 after providing $376,763 for taxes. Company is planning to open branch at South Pittsburgh, Tenn.

**Holston Mfg. Co.,** Sevierville, Tenn., unit, has begun operations with 60 knitting machines and auxiliary looping equipment. This machinery was moved to the new plant from Knoxville. The new unit was opened because of transportation conditions. Many of the operatives live near the new unit and it was hard for them to get to Knoxville.

**M. & S. Hosiery Mill,** Fort Atkinson, Wis., has been sold by its owner, Dr. P. J. Mejarus, to Harold E. Constant, Milwaukee, operator of a chain of hosiery stores. Constant plans to reopen the plant, idle since last June.

**May McEwen Kaiser Co.** reports net profit for 1942, after charges, of $1,278,200, compared with $1,168,379 for 1941.

**McCallum - Propper Hosiery Co.,** has sold its former plant at 191 West Roosevelt boulevard, Philadelphia, Pa., to Joseph Gold of Philadelphia for a price in excess of $75,000. The property is assessed at $60,400 and was built for the McCallum-Propper Co.

**Pearl Mill, Inc.,** Boiling Springs, N. C., has begun manufacture of seamless hosiery in the former Winner Hosiery Mills building.

**Penn-Carol Precision Machine Corp.,** Concord, N. C., a subsidiary of Penn-Carol Hosiery Co., has been organized for manufacture of products essential to the war effort.

**Se-Ling Hosiery Mills, Inc.,** Nashville, Tenn., has arranged financing with Defense Plant Corp., Washington, D. C., Federal agency, in amount of $20,000, for additional equipment for installation in mill, now given over to production for Government. This makes a total of $85,000 secured by company through same source for expansion at plant.

**Terry Hosiery Mills, Inc.,** High Point, N. C., have completed installation of additional equipment, recently acquired by purchase of the Spinks Hosiery Mills, Dallas, Ga. This corrects last month's item which incorrectly stated that Spinks had bought the Terry company.

**Utica Knitting Co.** reports net profit after charges for 1942 of $497,411, compared with $573,401 for 1941.

**Whitlock Knitting Mills,** Rutherfordton, N. C., have started up on men's 220-needle goods for civilians and the Government. G. T. Whitlock of Hendersonville is in charge. He has leased the Clark Hosiery Mill.

## Processing Plant News

**Cotan Corp.,** 345 Oliver St., Newark, N. J., manufacturer of coated fabrics, has been purchased by Interchemical Corp., New York, N. Y., and will be operated as a unit of that organization.

**Guyan Mills, Inc.,** Pawtucket, R. I., has been appointed a finisher licensee under the American Viscose Corp.'s "Crown" Tested Plan, to dye and finish rayon fabrics in accordance with the "Crown" Tested minimum requirements.

**Mohawk Carpet Mills, Inc.,** Amsterdam, N. Y., is now operating a division for the fabrication of tarpaulins for war service, in addition to production of duck, blankets, etc., for the Government. Company has installed complete equipment for mildew-proofing, water-proofing and fireproofing of duck.

**Polly Prentiss Textile Finishing Co.,** Sumter, S. C., recently organized, will operate a dyeing and finishing mill in this vicinity. Morris G. Scher of Scher Textiles, Inc., New York, will be one of the heads.

**Suntex Products Corp.,** New York, N. Y., recently organized, care of Kenneth Carroad, 40 Worth St., New York, attorney and representative, plans operation of textile print and dye works.

# A DIFFERENT WAR? YES!

## . . . and a different war presents new and difficult problems.

**Uncle Sam's fighting men in the jungle, in the Arctic, on the desert - - all over the world - - are demanding fabrics finished to meet the extreme conditions of this *new* kind of war. ● Arkansas' vast peacetime experience is now solving wartime problems . . producing for textile processing and finishing plants products that meet exacting government specifications.**

## FRONT LINE PRODUCTS

**FUNGICIDE G** For mildewproofing all types of cotton cloth used in sleeping bags, webbing, tentage, mosquito netting, etc.

**ARKO FIRE RETARDANT** For flame-proofing uniform cloth, tentage, felts, etc.

**CULOFIX L*** For preventing color-bleed in water of direct dyed cotton.

**AQUAROL*** Produces a water-repellent finish on uniform cloth, overcoatings, and other military fabrics . . used in a single bath treatment with Fungicide G to impart water-repellency and mildew resistance . . used in a single bath treatment with Arko Fire Retardant to produce water-repellency and fire-resistance.

*REG. U.S. PAT. OFF.

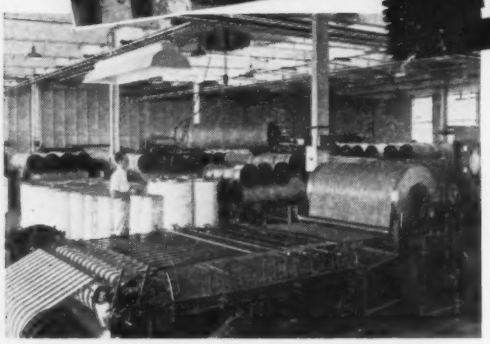
# ARKANSAS CO. INC.

NEWARK • NEW JERSEY

*Inexpensive hoist and track provides low cost handling and storage.*

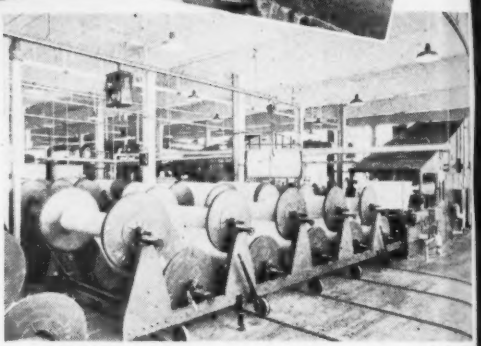
*3 ton hoist unit with Mono-Tractor handles loads from kiers throughout entire dye house.*

# AMERICAN MONORAIL *in* Textile Mills

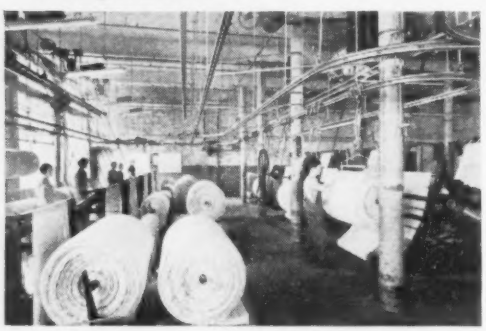


*Hand operated crane with electric hoist covers beam storage area for serving slashers.*

## *Simple Method for* STEPPING *up Production*

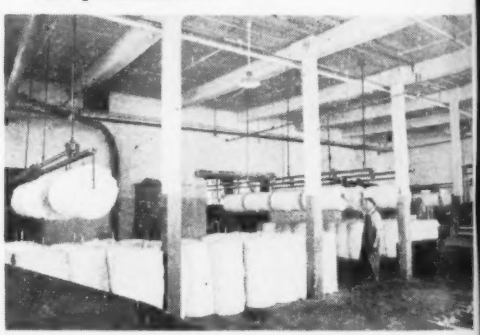


*Chain hoist loads creel which is rolled into position to keep slasher in full production.*



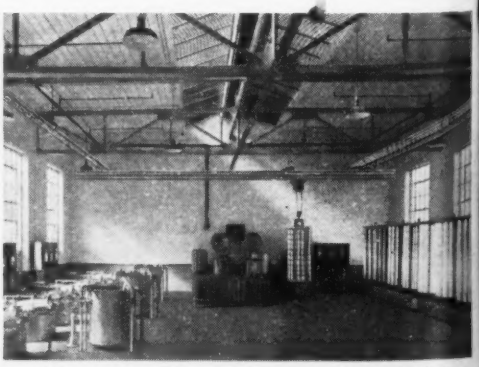
*Special carriers loaded by hoist on auxiliary track transfer rolls from finishing to inspection.*

AN American MonoRail Engineer will gladly show you how it can be done in your mill. Write today.



*Carrier handles four laps on tracks extending throughout the card room.*

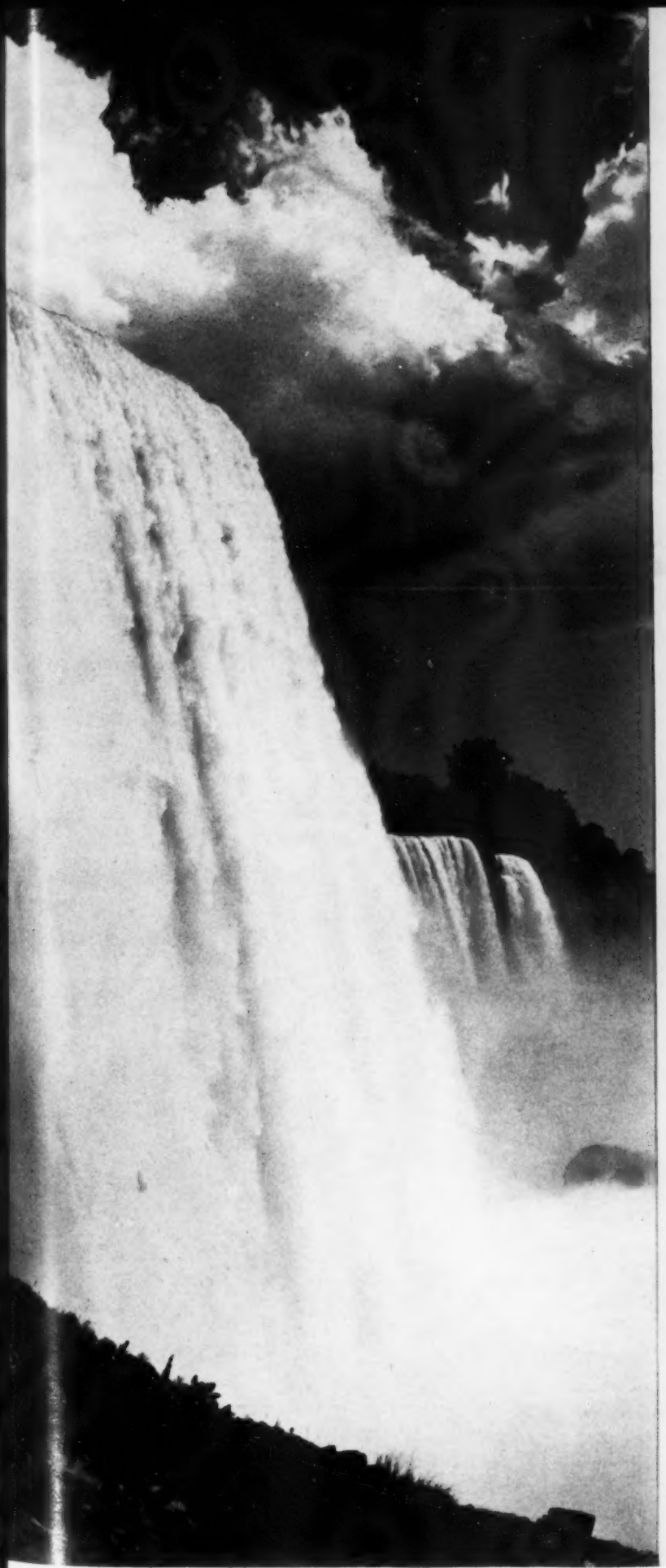
*Overhead handling of warps and rolls permits compact arrangement.*



*Hand pushed crane with electric hoist completes the operation of package dye house.*

## THE AMERICAN MONORAIL CO.

13108 Athens Avenue ★ Cleveland, Ohio



# RIVER OF *Destiny*

In Niagara Falls the river and the land have combined in such a way as to cause wonder and admiration in the hearts of men. In a similar way, too, the river of humanity that has poured across our shores in the last three hundred years has combined with the land to shape a nation whose progress holds great fascination for the rest of the world. Today it is seen as a stream of destiny which men of all countries may follow with hope and confidence.

Like Niagara, America generates power as it goes forward. The energy inspired by its success under its free institutions is being transferred to other countries. The promise of safe and sound leadership in world affairs offered by this country is a source of courage to millions of people in lands where oppression rules. For with the natural and human resources of the U. S. A. working and fighting on the side of the oppressed, wherever they are, America is now more than ever before in its history a river of destiny which leads to security and happiness.

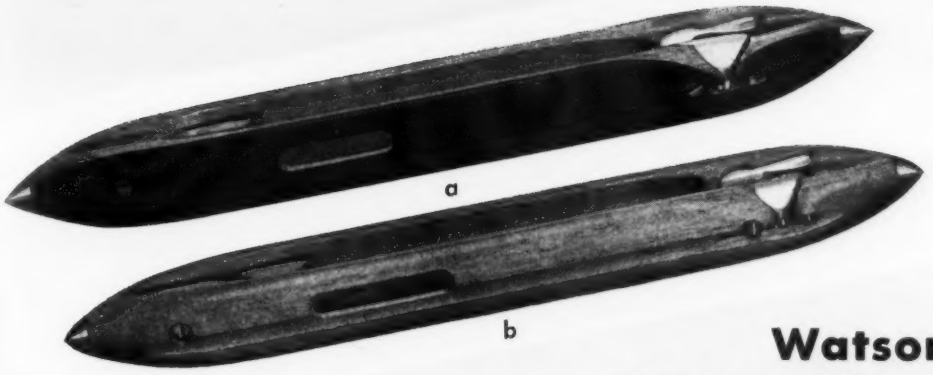
*We who work within sight and sound of Niagara Falls are devoting every ounce of our energies and facilities to speeding the flow of chemicals for Victory.*

**CAUSTIC POTASH · CAUSTIC SODA**
**PARA · CARBONATE OF POTASH**
**LIQUID CHLORINE**

EBG **Niagara ALKALI COMPANY**

60 EAST 42nd STREET, NEW YORK, N. Y.

*An Essential Part Of America's Great Chemical Enterprise*




a *Three sided fibre shuttle, persimmon base*

b *Impregnated persimmon shuttle*

# Watson-Williams PERSIMMON SHUTTLES are the answer to the dogwood shortage

Watson-Williams saw the dogwood shortage coming, bought the finest persimmon cut to exact specifications, then impregnated the wood or added fibre. These shuttles have now been operating for many months, under all conditions, on different fabrics, and on various types of looms. They've passed every test with flying colors. Try both shuttles of impregnated persimmon and fibre covered persimmon.

*We will fill your trial orders promptly.*

**WATSON-WILLIAMS MFG. CO.** MILLBURY, MASS.

SOUTHERN OFFICE: W. F. Daboll, 810 Woodside Bldg., Greenville, S. C.
NORTHERN REPRESENTATIVE: G. C. Burbank, 32 Beaconsfield Rd., Worcester, Mass.

---

1854 1943

We have been factors to the textile and allied industries for 89 years. Our efficient credit checking facilities, together with the purchase of accounts receivable, furnishes our clients with additional working capital while relieving them of all credit risks.

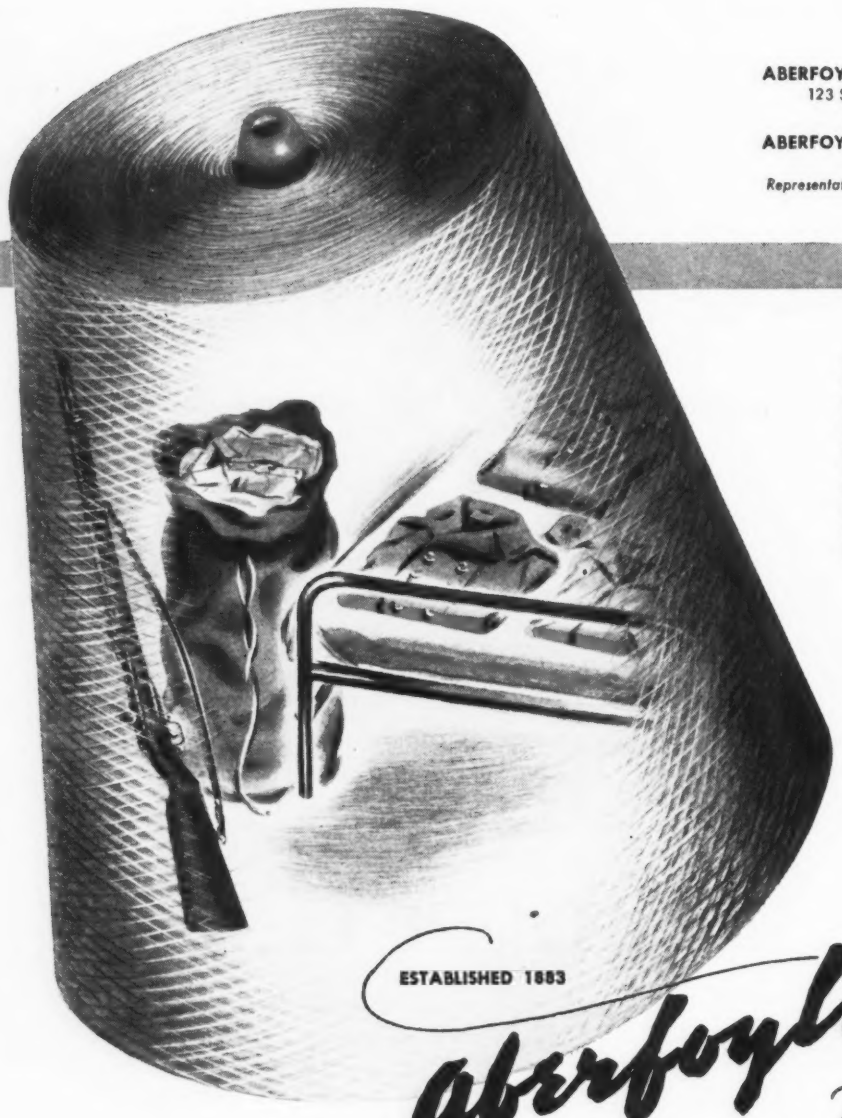
*We invite your inquiry as to our service.*

# James Talcott, Inc.

★ FACTORS ★

225 Fourth Avenue New York City

**G.I.** clothing and equipment for all the armed services and for those of our fighting allies continue to take much of our available supplies of Durene, Cometcord, S-P-Y, Neophil, Preferred Brand, Entwist, Weartwist and Aberfoyle Dyed Yarns . . . just as they have taken so great a portion of your own production capacity. Nevertheless, for the margin of civilian production, which through ingenuity and enterprise, you have been able to maintain, we are making available as much yarn as we possibly can . . . and we are distributing it as equitably as can be done.



**ABERFOYLE MANUFACTURING COMPANY**
123 South Broad Street, Philadelphia, Pa.
*—and in the South*
**ABERFOYLE MANUFACTURING COMPANY**
Belmont, North Carolina
*Representatives in principal textile centers of the world*

DURENE 2-Ply Mercerized Cotton Yarn • COMETCORD 4-Ply Mercerized Cotton Yarn for 6 x 3 Lines • S-P-Y, the Moisture Resistant Mercerized Yarn • NEOPHIL Nylon Thread for Seaming and Looping Nylon Hosiery • PREFERRED Brand Seaming and Looping Thread • ENTWIST Mercerized Cotton Yarn and Nylon Twisted Combination • WEARTWIST, the Domestic Mercerized Lisle • DYED YARNS

ESTABLISHED 1883

*aberfoyle* YARNS

AMERICA'S OLDEST MERCERIZERS OF FINE COTTON

# UNITED BY A BOND

United by a BOND! The word BOND brings up pictures of strong friendships—of lasting marriages—of things firmly joined together into a new whole. BOND is a strong word! When it describes the BOND between pigment and fabric fiber, it emphasizes the most important achievement in modern pigment-printing and pigment-dyeing. It is more than just an adhesive. With Aridye* Textile Colors and the proper method of application and curing, the BOND between pigment and fiber assures wash-fastness, light-fastness and scrub-proofness. It will last as long as the fabric!

### *How to Be Sure of this BOND*

The firm BOND between the pigment and the fiber is an outstanding accomplishment of modern pigment-printing and pigment-dyeing. Users of Aridye Textile Coloring Materials know that this firm BOND results only when:

1. *Technically correct pigmented colors are used*
2. *The colors are properly applied to the fibers of the cloth*
3. *The colored fabric is then adequately cured.*

If these conditions are met, the resulting colored fabric, with the pigment firmly BONDED to the fabric fibers, will meet the standards for high quality merchandise. The selection of the right pigment, the exact form of the pigment, the method of dispersing, the tenacity of the binder and the proper curing of the fabric have all been determined by research in the Laboratories of Aridye Corporation and proven by actual production experience.

Aridye colors for pigment-dyeing are emulsions. The pigments are dispersed in a solution of synthetic resins into which water is emulsified. This emulsion remains stable; consequently there is no exhaustion of the bath, as all components are taken up together by the fabric in the same proportions.

### *Meet Industry's High Standards*

Aridye colors, properly applied and adequately cured, meet or exceed the high standards of the textile industry for wash-fastness, light-fastness and scrub tests. Certain Aridye colors for pigment-printing or pigment-dyeing can be selected which will withstand *300 hours* in the fadeometer without noticeable letdown in shade. Comparative tests, covering Mildew Effectiveness, Resistance to Abrasion, Chlorine Retention, Air Porosity and Presence of Primary Irritating Substance, have been made by the United States Testing Company, Incorporated. Full copies of these reports will be sent on request.

### *Aridye Colors Are Available Now*

Aridye pigmented emulsions are available *now*. For additional information about this method of printing and dyeing with fast pigments, write to Aridye Corporation, a Subsidiary of Interchemical Corporation, Fair Lawn, New Jersey.

*Reg. U. S. Pat. Off.

**NOT ONE, NOT TWO, BUT**

**3**

**CONDITIONS GOVERN THE BOND BETWEEN FABRIC FIBER AND PIGMENT**

**1** Technically correct pigmented colors
**2** Proper application to the fibers
**3** Adequate curing of the fabric

**NO SHORTCUT PROCEDURE CAN PRODUCE A SATISFACTORY BOND**

# Aridye

## TEXTILE COLORING MATERIALS

ARIDYE CORPORATION • A Subsidiary of Interchemical Corporation • FAIR LAWN, NEW JERSEY • ROCK HILL, SOUTH CAROLINA • PROVIDENCE, RHODE ISLAND

Thirty-five foot high "Karbate" absorption tower equipped with graphite trays and bubble caps. One of many examples of the application of these materials.

# Unique

## *in Properties and Performance*

## NATIONAL AND KARBATE
TRADE-MARK TRADE-MARK

## CARBON AND GRAPHITE PRODUCTS

are being used successfully in a wide range of important applications in the mechanical, electrical and process industries because of the many advantages offered by their unique combination of physical and chemical properties.

- Resistance to severe thermal shock.
- No deformation at high temperatures.
- Not wet by molten metals — no sticking.
- Mechanical strength maintained at high temperatures.
- No reaction with most acids, alkalies and solvents.
- Low thermal expansion.
- High rate of heat transfer (Graphite and Graphite Base "Karbate" products).
- Low rate of heat transfer (Carbon and Carbon Base "Karbate" products).
- Good electrical conductivity.
- Self-lubricating.
- Available in impervious grades.
- Available in highly permeable (Porous Carbon and Graphite) grades.
- Easily and accurately machined and fabricated.
- Molded and extruded in special shapes when quantity justifies.

Carbon and graphite materials are available in the form of:
Brick, Blocks, Beams, Plates, Flat or Hollow Tile,
Slabs, Pipe, Tubes, Rods, Cylinders, Cement, Paste.

A variety of sizes permits fabrication of all types of equipment from small intricate parts to huge all-carbon structures.

•

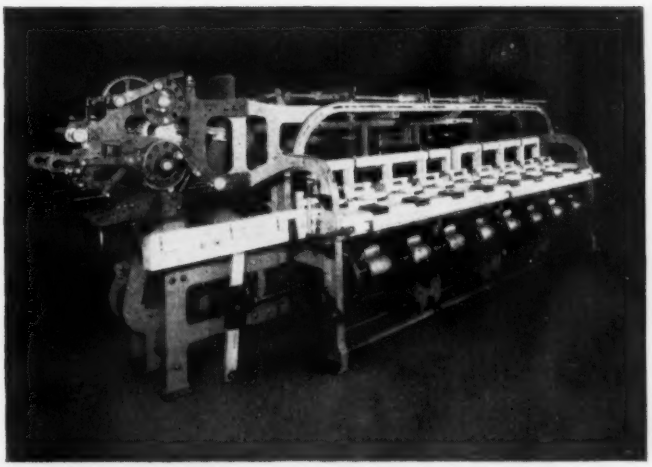
Conventional design has been improved and simplified new design made possible by the use of "National" and "Karbate" carbon and graphite products. Following are some of the more important applications:

**Heat Exchangers . . . Towers and Tower Equipment . . . Raschig Rings and other Tower Packings . . . Pipe, Valves and Fittings . . . Tanks, Tank Linings and Miscellaneous Containers . . . Filter and Diffuser Elements . . . Packing, Piston and Seal Rings . . . Bearings . . . Molds, Mold Plugs, Inserts and Stools . . . Ground Anodes . . . Welding Electrodes, Rods, Plates and Paste . . . Brushes and Contacts . . . Miscellaneous Electrical and Chemical Specialties.**

**NATIONAL CARBON COMPANY, INC.**
Unit of Union Carbide and Carbon Corporation
UCC
CARBON SALES DIVISION, CLEVELAND, OHIO
General Offices: 30 East 42nd St., New York, N. Y.
Branch Sales Offices: New York, Pittsburgh, Chicago, St. Louis, San Francisco

**Make this part of your postwar planning:**
**Keep in touch with FLETCHER to prepare for future needs for**

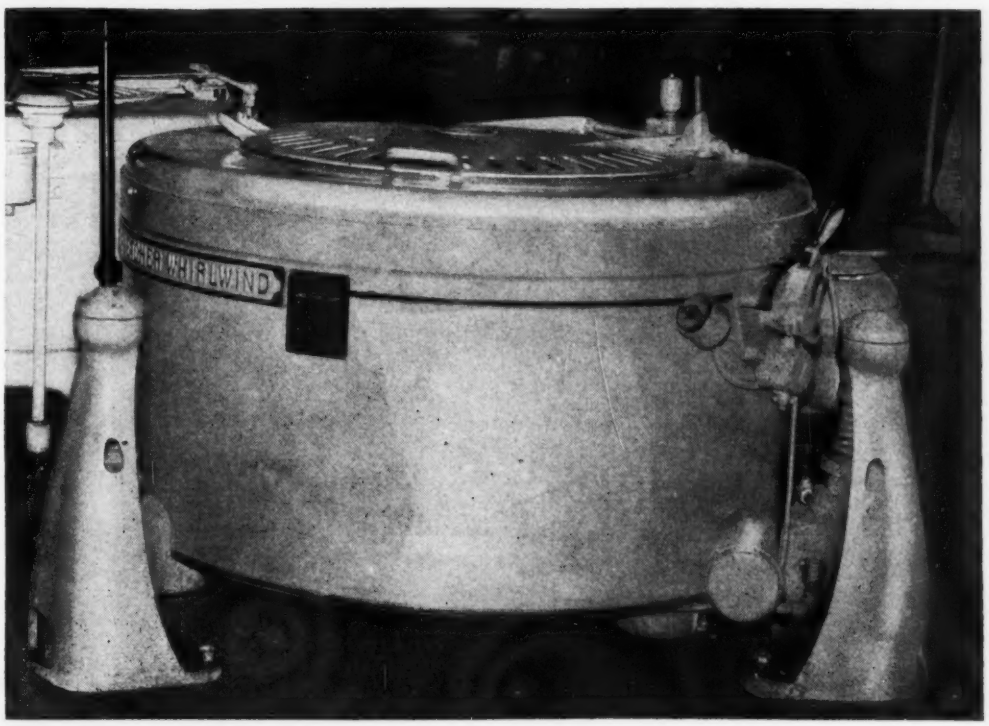
# HIGHER SPEEDS

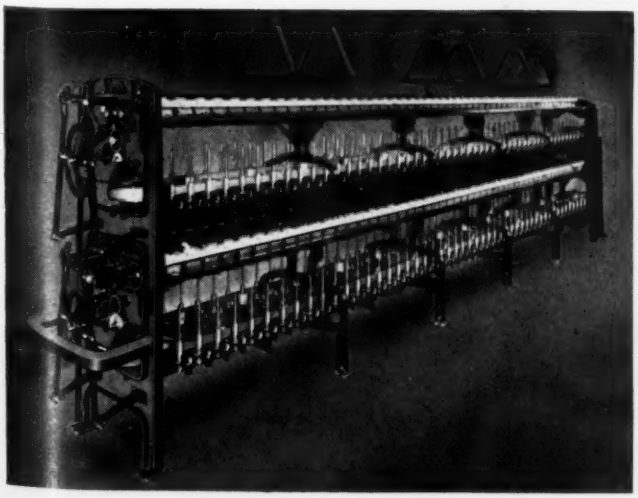


**FLETCHER LOOMS** such as the webbing loom shown at right, above, today are producing millions of yards of goods vital to war... Goods that reach all fronts faster because Fletcher looms have both the speed for war production and the ability to withstand the strains of the 168-hour week.

**FLETCHER WHIRLWIND EXTRACTOR** (shown at right) similarly is a war production asset to textile mills everywhere. Its exceptionally high basket speed, as well as its speed in acceleration and unloading, make possible extra margins of production which are lifesavers to mills unable to add to facilities to meet increased demands.

**FLETCHER "APEX" TWISTER** shown below, is another effective Fletcher aid to quality production, in quantity.



Constantly, all Fletcher machines are being reviewed by Fletcher development engineers, alert to possibilities for improvement. This practice has been responsible for the advanced design of Fletcher equipment past and present . . . and, future indications are for important new features, even greater speeds and efficiencies in production.

**WE SUGGEST** *that you write, now, to have your name put on our mailing list . . . We'll keep you informed about the newest in equipment, in preparation for V-day to come. No obligation, whatsoever.*

**FLETCHER WORKS • Glenwood Ave. & Second St., Philadelphia**

# PERKINS AUTOMATIC BIN PILERS

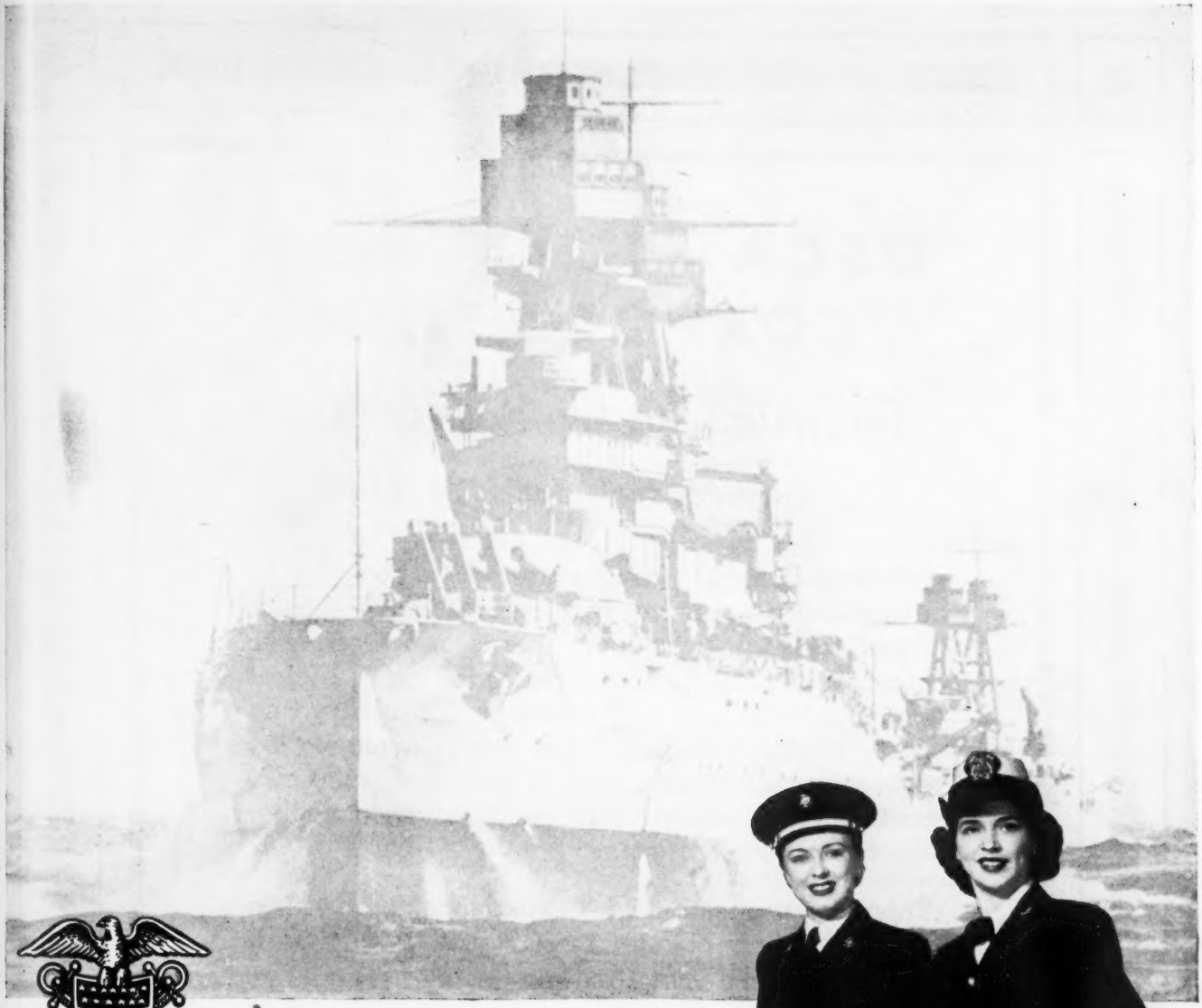
PATENTED

**You cannot afford to pile by hand**

## B. F. PERKINS & SON, Inc.

ENGINEERS AND MANUFACTURERS

HOLYOKE, MASS.



# THEY'RE IN THE *NAVY* NOW

**Attention!**... Yes indeed, our sisters-in-arms deserve it—and we salute them for their fine organization and efficient service.

And whether they are on duty or off, at work, at play or at rest, many of the garments they wear will have the Fibres (or the Fabrics) treated or finished, with *Scholler Processing Products*—for Style, Beauty, and Long Service Life.

For over 35 years *Scholler Products* have been recognized as a *standard of quality.*

DuraBeau FINISHES
Reg. U.S.A. and Canada

SCHOLLER BROS., INC. - Mfrs. of Textile Soaps, Softeners, Oils, Finishes - Collins & Westmoreland Sts., Phila., Pa. - St. Catharines, Ontario, Can.

# OSCAR HEINEMAN CORPORATION

## Throwsters for the Hosiery Trade

***Quality Products for Fifty Years***

Leading Hosiery Manufacturers are profiting as a result of the superior knitting and finishing quality of our high twist rayon yarns, processed with our special R/50 Avconit formula for unoiled yarns and our R/60 and R/70 formulae for oiled yarns. Each of our formulae have been developed by experts with a background of years of experience and will produce equally good results on either Viscose or Acetate yarns.

There is no substitute for experience and skill in the processing of high twist rayon yarns which will enable the manufacturer to produce fabrics of even texture and clearness.

**FOR**

***Increased Production***
***Less Seconds and Waste***
***Satisfied Knitters***

**USE**

***Our Avconit processing for Viscose, Bemberg and Acetate yarns.***

**2701 ARMITAGE AVENUE — CHICAGO, ILLINOIS**

| | | |
|---|---|---|
| Averfoyle Mfg. Co. | N. P. Murphy | C. D. Gott Co. |
| 123 So. Broad St. | 813 Guilford Bldg. | 3303 Brainerd Road |
| Philadelphia, Pa. | Greensboro, N. C. | Chattanooga, Tenn. |

# FOR G. I. Full-Fashioneds—

## LAUREL EMULSIONS, OILS AND FINISHES FOR RAYON AND COTTON

It's a new era for cotton and rayon full-fashioneds ... they're in the Army now. It's a new era, too, with new problems for finishers, but Laurel Oils and Finishes can simplify their full-fashioned processing. Available for immediate delivery.

**Laurel Emulsions** give more even cotton yarns, clearer stitch and proper regain.

**Laurel Rayon Oils and Finishes** help control rayon twist and stretch, prolong the life of the fibers.

**Laurel Hosiery Finishes** produce the smooth finish that is the pride of the American woman whether on parade or promenade.

*Send for trial order and formula today.*

**SPEED VICTORY—BUY WAR BONDS**

SOAPS • OILS • FINISHES

*Laurel*

**SOAP MANUFACTURING CO • INC•**

WM. H. BERTOLET'S SONS ESTABLISHED 1909
TIOGA, THOMPSON & ALMOND STS., PHILADELPHIA, PA.
WAREHOUSES: PATERSON, N. J., CHATTANOOGA, TENN., CHARLOTTE, N. C.

# There's a huge "sampling" job going on for vat dyes

THE GREATEST fighting force this nation has ever had is reaching into nearly every corner of the globe. Add to it the millions of factory workers who serve on the home front. Most of these people are wearing uniforms dyed with vat colors.

Here is a gigantic "sampling" job that can have only one result—admiration for the fastness of vat dyes. Vat dyes are proving their durability under hard wear, repeated launderings or cleanings, exposure to sun, rain, perspiration. They prolong the usefulness of fabrics.

When Johnny and Joan come marching home and change their uniforms for peacetime garments, the results of this present "sampling" job will be felt.

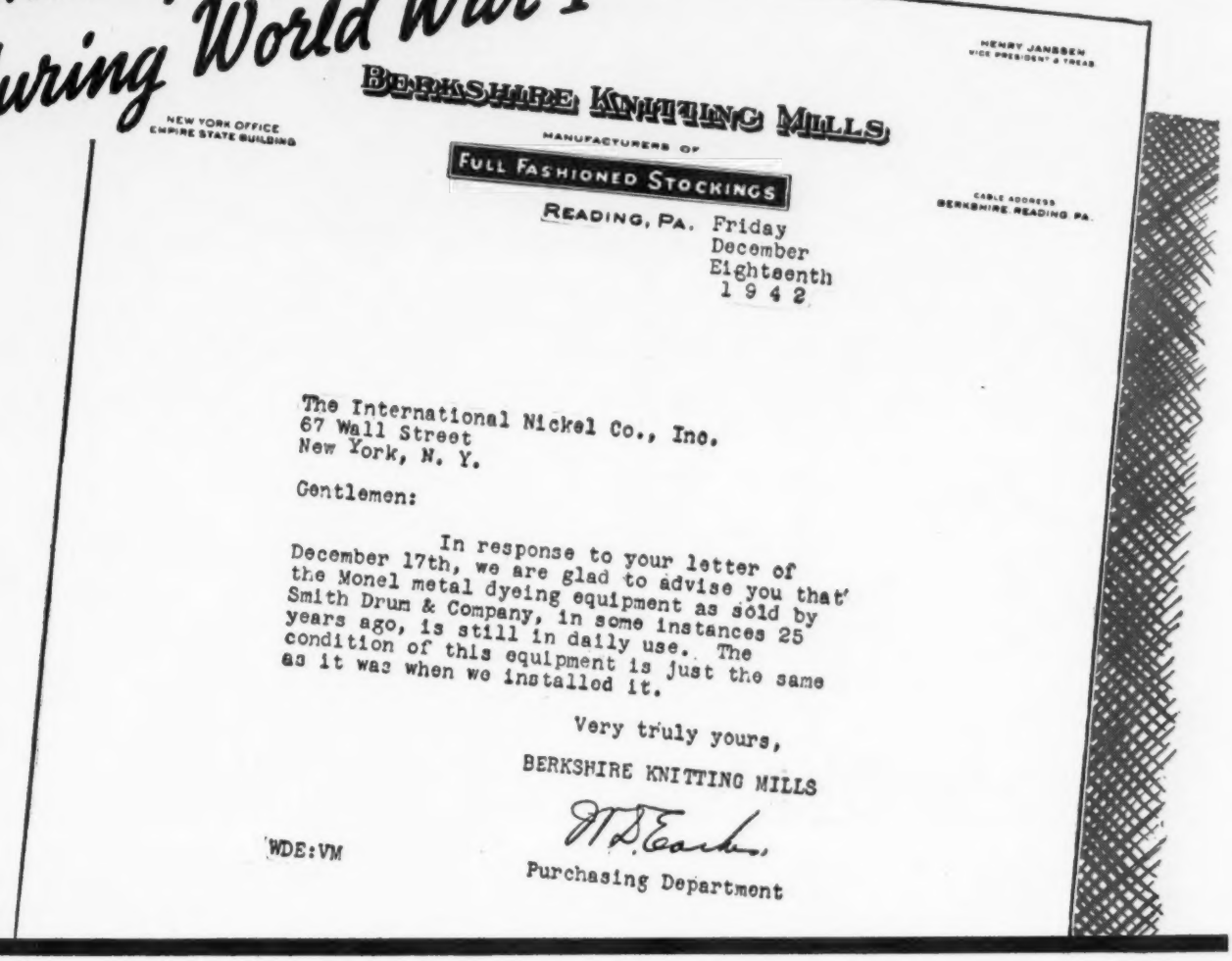
Take advantage of this "testing laboratory" staffed by millions in the military forces. Style your lines with fast colors—vat colors wherever Uncle Sam can spare them. It will help build your reputation for the increased post-war market. E. I. du Pont de Nemours & Company (Incorporated), Organic Chemicals Department, Dyestuffs Division, Wilmington, Delaware.

DU PONT DYESTUFFS

REG. U.S. PAT. OFF.

*BETTER THINGS for BETTER LIVING . . . THROUGH CHEMISTRY*

# "GOOD as NEW" That's what Berkshire thinks today about Monel dyeing equipment put in service during World War I



HENRY JANSSEN
VICE PRESIDENT & TREAS.

BERKSHIRE KNITTING MILLS

NEW YORK OFFICE
EMPIRE STATE BUILDING

MANUFACTURERS OF
FULL FASHIONED STOCKINGS

CABLE ADDRESS
BERKSHIRE READING PA.

READING, PA. Friday
December
Eighteenth
1942

The International Nickel Co., Inc.
67 Wall Street
New York, N. Y.

Gentlemen:

In response to your letter of December 17th, we are glad to advise you that the Monel metal dyeing equipment as sold by Smith Drum & Company, in some instances 25 years ago, is still in daily use. The condition of this equipment is just the same as it was when we installed it.

Very truly yours,
BERKSHIRE KNITTING MILLS

WDE:VM

Purchasing Department

In daily use during two World Wars—and still as good as new!

Yet this is *not* unusual performance for Monel textile equipment. Many machines in production today have seen a quarter century of service.

Durable, corrosion-resistant Monel is helping to maintain peak war production by seldom being the cause of down time. And because Monel *is* so serviceable, it saves on repairs which are next to impossible to make.

Considerable metal is thus saved for other vital needs.

At present, the entire output of this strong, tough, rust-resisting nickel alloy is being allocated to our armed forces. After the war, Monel will again be available to those who demand dependable performance in textile equipment.

**THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.**

# "Reporting for duty, sir!"

## NEW MODINAL* DN

### speeds wartime production

SPEED UP and improve your wartime production! New Modinal DN can help you attain greater efficiency and meet increased demands. It's surprisingly versatile:

**In Scouring Woolens and Worsteds**...New Modinal DN reduces rinsing time and temperatures, eliminates blotchy dyeing and improves penetration. Results are uniform. You save time, steam, labor and water.

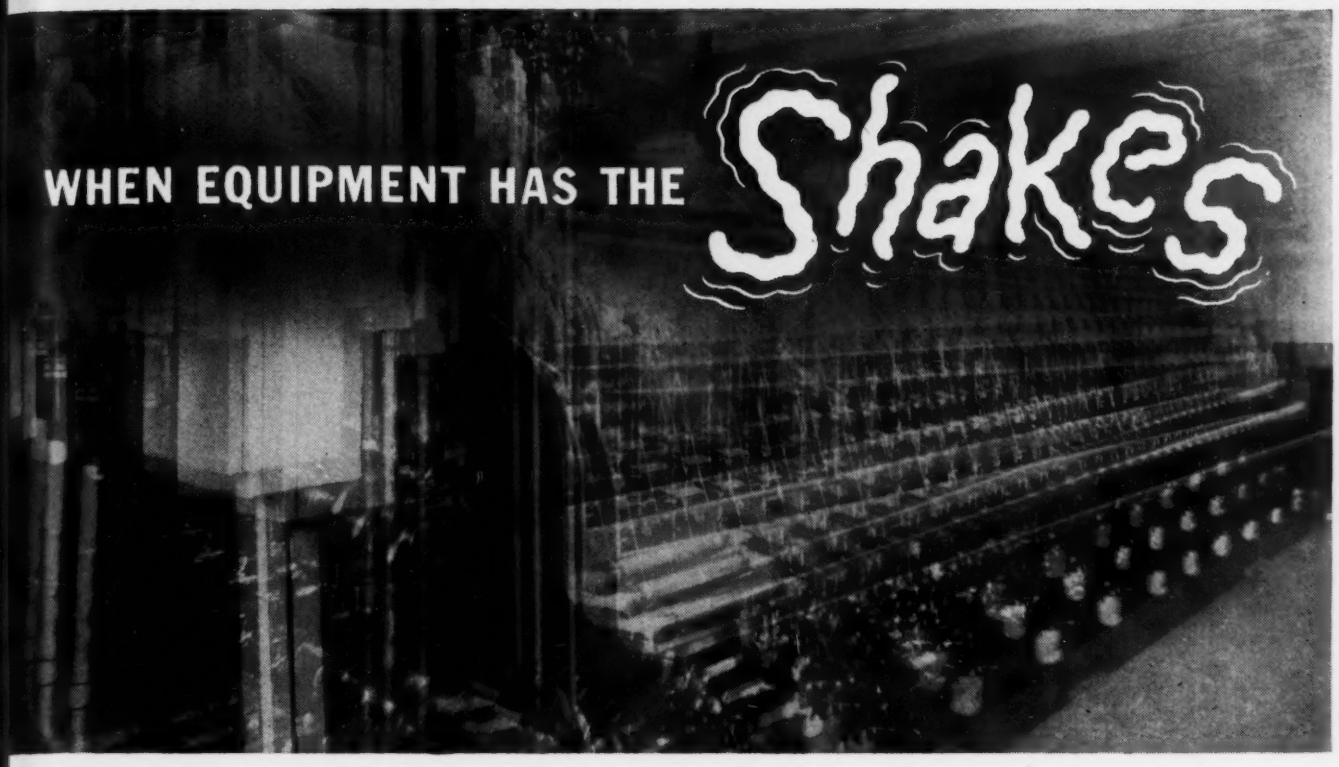
**In Soaping Vat-dyed Cottons:** Modinal DN obtains full shade development—often improves light fastness. Military colors—the khaki, olive, and green shades—are improved.

**In Viscose and Acetate Rayons:** New Modinal DN for scour and dye bath improves penetration in rayons. Results are more uniform, finishing better. There is no soapy odor.

Get help from our experienced men on technical production problems. Gardinol Corp., Gen. Offices, Wilmington, Del. Sales Agents: Procter & Gamble, Cincinnati, O.—E. I. du Pont de Nemours & Co. (Inc.), Wilmington.

*"**Modinal**" is the trade-mark used by the Gardinol Corporation to designate a group of its fatty alcohol sulfates.

## MODINAL DN Fatty Alcohol Sulfates




WITH process industries driving toward ever higher production of vital materials—*acid handling equipment must not fail.* And in many cases Tellurium Lead is helping to keep it on the job.

* * *

One possible source of trouble in such equipment is vibration. The resultant dynamic or fatigue stresses, acting in combination with corrosion, are destructive to acid-resistant linings or coverings—more destructive than either factor alone.

To help combat this stress-corrosion, Tellurium Lead offers two important properties. First, it has the corrosion resistance for which lead is well known. Second, it has improved fatigue resistance. When tested in a Haigh "fatigue" testing machine, it exhibited a 60% greater endurance limit than lead without tellurium.

* * *

Another condition which sometimes causes trouble in acid processing is the repeated, drastic change in temperature to which tanks for heating and cooling are subjected. The continued expansion and contraction, with accompanying movement or working of the lining, may create severe stresses, resulting in failure. Some users report that, in certain cases of this kind, the use of Tellurium Lead results in definitely longer lining life.

This advantage of Tellurium Lead has been attributed, among other things, to its ability to *work harden*—to toughen and increase in tensile strength as it is worked.

This work-hardening property of Tellurium Lead tends to be of value in applications where lead must be bent, stretched or hammered—as in turnover points, elbows, flanges, coils and joints—as well as in equipment which must withtstand vibration.

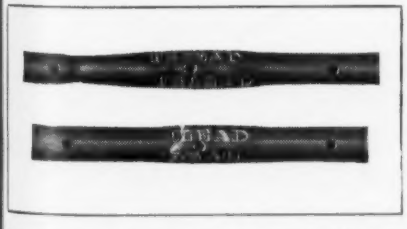
* * *

Another factor in Tellurium Lead's resistance to corrosion under severe conditions of stress and heat is undoubtedly a result of its generally finer, more uniform grain structure, shown in the photomicrographs below. As a result, the surface of Tellurium Lead sheet and pipe tends to be smoother, with less possibility of pitting and local corrosion.

* * *

Tellurium Lead of our manufacture is time-tested St. Joe chemical lead alloyed with a small quantity of tellurium. It is available in sheet or pipe form, or fabricated in coils for heating and cooling purposes.

For further information address the nearest Company branch listed below.




*Strengthens under Stress:* A section of Tellurium Lead pipe (top) and a section of regular lead pipe (bottom) were stamped with their respective names and pulled out at equal rates in a tensile testing machine. Note how the Tellurium Lead pipe developed strength where it was work hardened by the stamping, whereas the other lead was weakened . . . and fractured.

*Finer Grain Structures:* Photomicrographs of Tellurium Lead (left) and ordinary lead (right), showing the generally finer, more uniform grain structure brought about by the addition of tellurium. Another significant point: In laboratory tests extruded strips of Tellurium Lead, annealed at 150°C for six months, showed no grain enlargement. Metallurgists agree that freedom from grain growth means less danger of rapid corrosion at elevated temperatures.

**USERS "TELL" THE DIFFERENCE**

**"We find Tellurium Lead stands up much better than other lead under vibration. The trouble we encountered (cracking of the corrosion-resistant covering on rayon spinning machines) has been entirely eliminated."**

* * *

"We are using Tellurium Lead regularly in our steam jet mixer heads, as we feel it greatly improves resistance to crystalline fracture under conditions of vibration or mechanical stress."

* * *

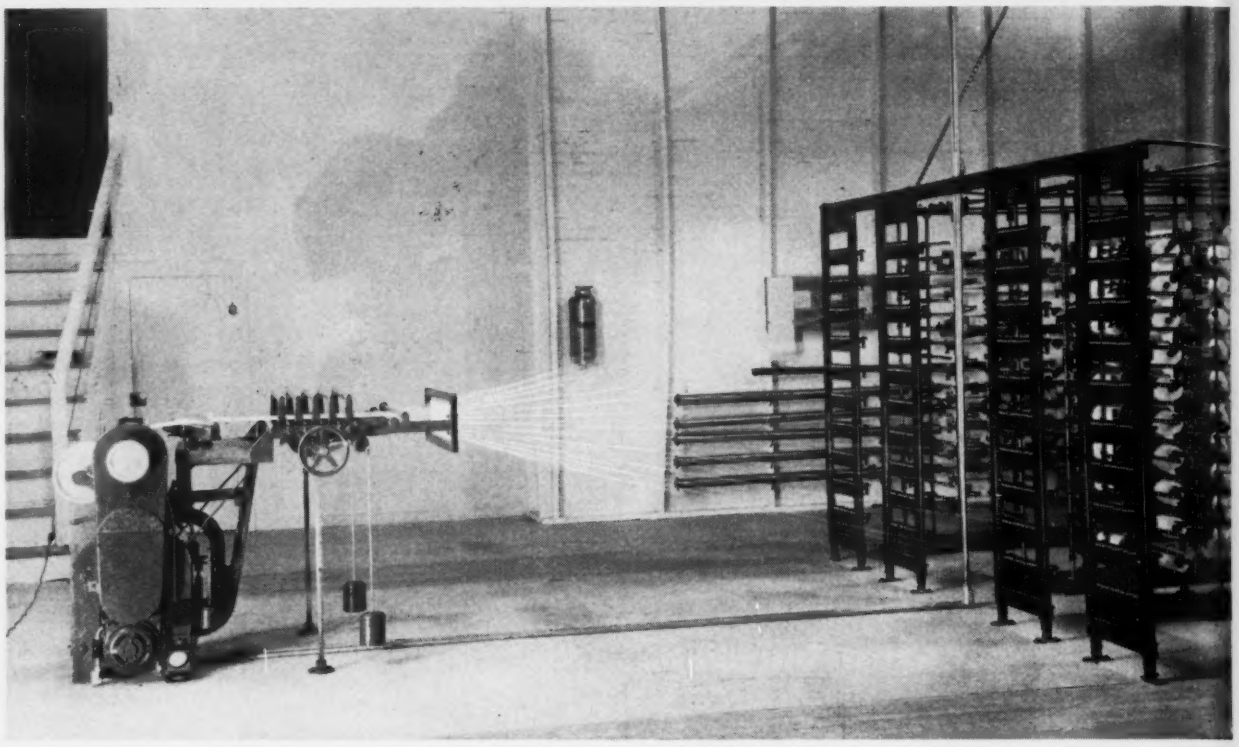
**"For the last two years we have purchased all our requirements in Tellurium Lead. We find a considerable advantage in resistance to vibration crystallization."**

* * *

"We find this material has a greatly improved resistance to so-called vibration crystallization."

# TELLURIUM LEAD

**NATIONAL LEAD COMPANY**—New York, Baltimore, Buffalo, Chicago, Cleveland, Cincinnati, St. Louis, National-Boston Lead Co., Boston; John T. Lewis & Bros. Co., Philadelphia; National Lead & Oil Co. of Penna., Pittsburgh; Georgia Lead Works, Atlanta; American Lead Corp., Indianapolis; Master Metals, Inc., Cleveland; The Canada Metal Co., Ltd., Toronto, Montreal, Winnipeg, Vancouver.



Illustrated is ONE COMPLETE NARROW BEAM WARPER UNIT, consisting of Narrow Beam Warper Head—Eyeboard Stop Motion—and our Magazine (HORIZONTAL TYPE) Cone Creel for 504 running ends. This Creel is shown handling Cones, but can be arranged to handle either or both cones and spools, and also operated at speeds up to 800 yards per minute, depending on Denier and type of yarn being Warped.

**CREEL TENSIONS** are designed so as to insure a minimum and uniform amount of tension on all ends of the Warp being made.

**UNIFORM YARN SPEED** from empty to full beam is obtained by means of an Automatically controlled Motor Drive Variable Speed Transmission Unit, which in combination with a Levelling Presser Drum insures level smooth beams of uniform density.

**MEASURING AND COUNTING:** A "Yardage Counter Clock" receiving its action from the "Levelling Presser Drum" indicates "Beam Yardage" and an "ELECTRICAL STOP REVOLUTION COUNTER CLOCK" operating from the Beam Driving Spindle Automatically stops the Machine at the required and predetermined number of "Beam Revolutions" for which it has been set to stop.

**GENERAL:** Machines are necessarily of heavy design and construction for High operating speeds, with all moving parts mounted in Ball Bearings equipped with Proper Lubrication System.

Machines are Motor Driven with Push Button Stations conveniently located at various points for stopping and starting, and Job Buttons on floor for moving yarn short distance.

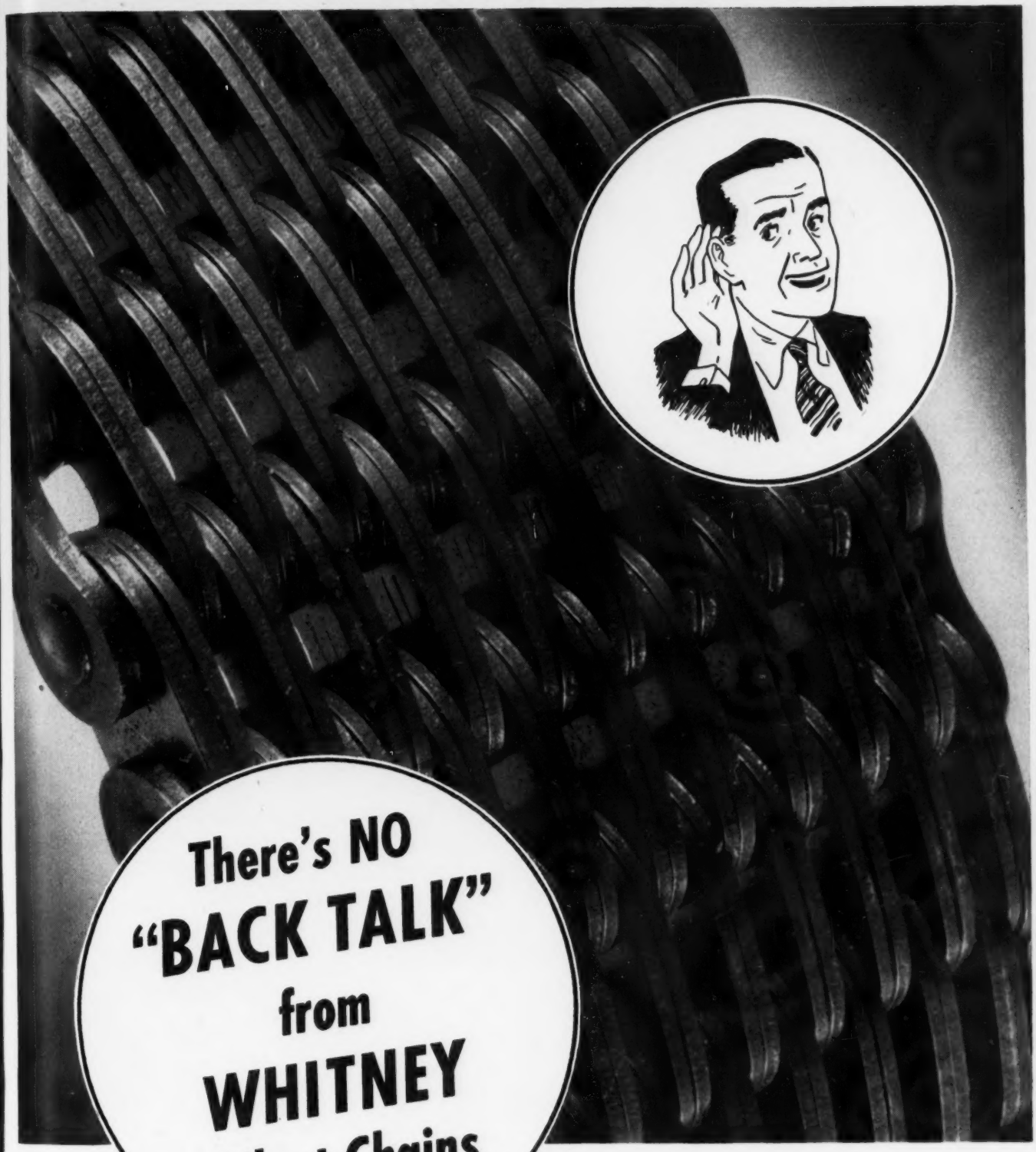
***DESIGNED AND BUILT BY***

# COCKER MACHINE AND FOUNDRY COMPANY

## Main Office and Works: Gastonia, N. C.

**Also builders of all Standard and Special Equipment used by the Textile Industry for**

## WARPING AND SIZING OF RAYON, COTTON AND OTHER YARNS



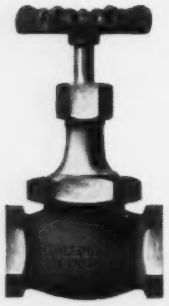
# There's NO "BACK TALK" from WHITNEY Silent Chains

When a textile machine gets a Whitney Silent Chain Drive, there's lasting peace from then on. These husky chains . . . *actually precision machines in themselves* . . . keep quietly at their work of delivering full power to the job, at constant speeds that keep production uniform. And they don't talk back when the going gets tough . . . make no frequent calls for maintenance and repairs. For Whitney's double-bearing design is armored with Whitney alloy steels of extra toughness, imparting *a reserve strength* that's a mighty reassuring thing to have on any machine today. Just ask any of the 20 ranking textile-machine builders who have standardized for years on Whitney Silent Chains.

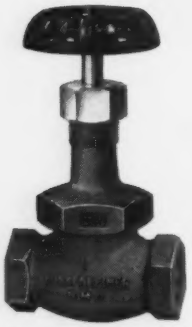
**THE WHITNEY CHAIN & MANUFACTURING COMPANY, HARTFORD, CONNECTICUT**

# Lunkenheimer Valves

## *Vital Helps to Industry's Needs*



Bronze "Renewo"
200-300 lb. S.P.



Bronze "N-M-D"
Non-Metallic Disc
150 lb. S.P.

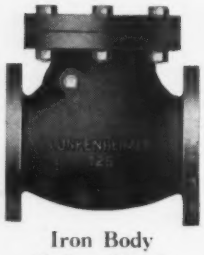
Bronze Gate
Double Wedge Disc
125-150 lb. S.P.

Bronze Gate
Single Wedge Disc
125-300 lb. S.P.

Iron Body Gate
125-250 lb. S.P.

Iron Body
"King-clip" Gate
150 lb. S.P.

Bronze Regrinding
Swing Check
200-300 lb. S.P.



Iron Body
Swing Check
125-250 lb. S.P.

Illustrated are a few of the many types of Lunkenheimer Valves helping to produce vitally needed equipment for the Army, Navy, Maritime Commission and Air Force and other war agencies.

They're part of the complete line of valves made by Lunkenheimer for every industrial process—of bronze, iron, steel and corrosion-resistant alloys—from tiny needle types to massive power-plant valves—for 125 to 2500 lb. S.P.

A further help is Lunkenheimer's nation-wide distribution through leading supply houses. Wherever there's war activity there's a local Lunkenheimer distributor serving it.

ESTABLISHED 1862

**THE LUNKENHEIMER CO.**

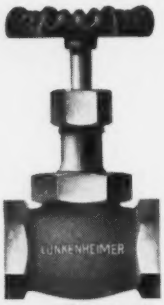
"QUALITY"

CINCINNATI, OHIO, U. S. A.

NEW YORK CHICAGO
BOSTON PHILADELPHIA

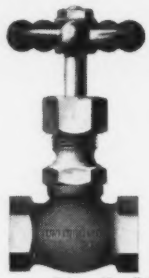
EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

Ask for Catalog 78 and the Guide for selecting Valves, Boiler Mountings and Lubricating Devices.

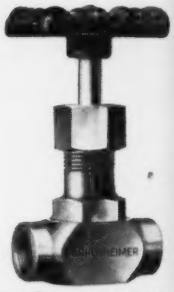


Bronze Regrinding
200-300 lb. S.P.

Iron Body "Ferrenewo"
150 lb. S.P.

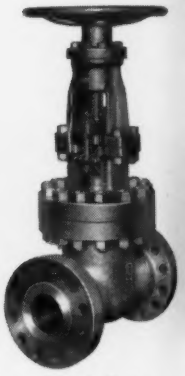


Bronze Needle Valve
200 lb. S.P.

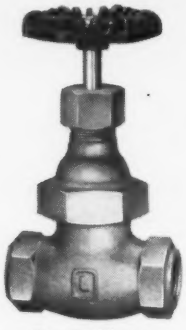


Steel Needle Valve
3000 lb. W.O.G.

Iron Body Globe
125-250 lb. S.P.



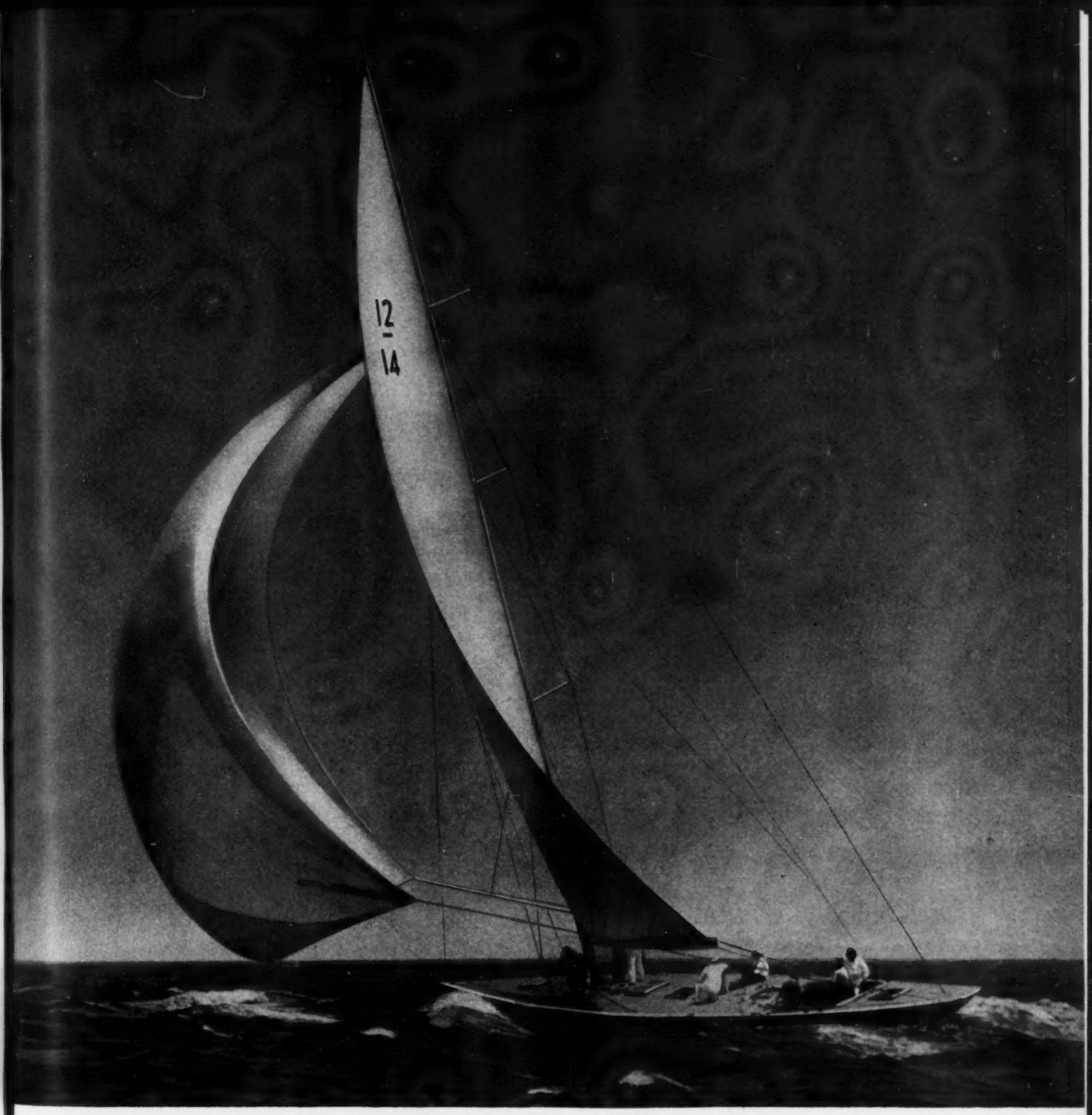
Steel Gate
150-2500 lb. S.P.



Steel Globe
Bonnet-Thread-Bushing
600 lb. S.P.

Steel Check
150-2500 lb. S.P.

**BRONZE, IRON, STEEL AND CORROSION RESISTANT ALLOY VALVES, 125 TO 2500 LB. S.P.; BOILER MOUNTINGS, LUBRICATING DEVICES, AIRCRAFT FITTINGS**




# AIR POWER

The pressure of air upon the sail of a primitive canoe was undoubtedly one of the first instances of *air power* aiding man power. Centuries later, but still over two thousand years ago, man started to *compress* air to extend its use for practical purposes.

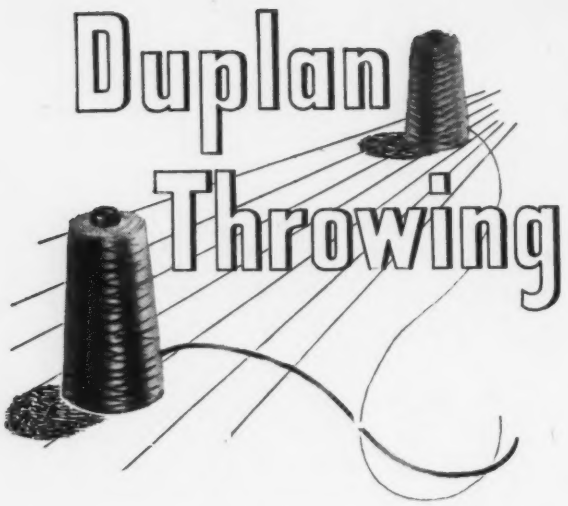
Through the years, the science of pneumatics has made possible much of man's progress. Today compressed air—*air power*— is essential in the performance of thousands of tasks, such as the mining, processing, and fabricating of the metals upon which we depend for our ships, planes, tanks, and guns. Air power and pneumatic tools are helping workers to improve their skill and to increase their production.

As the largest manufacturer of compressed air machinery, it is our responsibility to cooperate with you on compressed air problems. Our Engineering Service Division is available for this purpose.

8-276

**Ingersoll-Rand**
11 BROADWAY, NEW YORK, N. Y.

COMPRESSORS • AIR TOOLS • ROCK DRILLS • TURBO BLOWERS • CONDENSERS • CENTRIFUGAL PUMPS • OIL AND GAS ENGINES




# *Flexibility*

**Although our four modern throwing plants make Duplan the largest throwsters of yarn of every type—the thing we take greatest pride in is the FLEXIBILITY of the Duplan organization.**

**We have a long record of solving new and difficult technical problems. We have the experienced personnel, the equipment – and most important of all—the driving desire to maintain or improve the standards that have been responsible for our steady expansion from a small beginning.**

**If YOU have a throwing problem consult Duplan—We're sure our staff can be of aid on any problem that involves the throwing of**

**RAYON • ACETATE RAYON • NYLON**
**SILK • COTTON • WOOL**
**FOR KNITTING OR WEAVING—**
**FOR MILITARY OR INDUSTRIAL USE**

**THE**

**Duplan**

**CORPORATION**

**512 Seventh Avenue, New York**
**Philadelphia, 18 West Chelten Avenue**
**Chattanooga, Provident Building**
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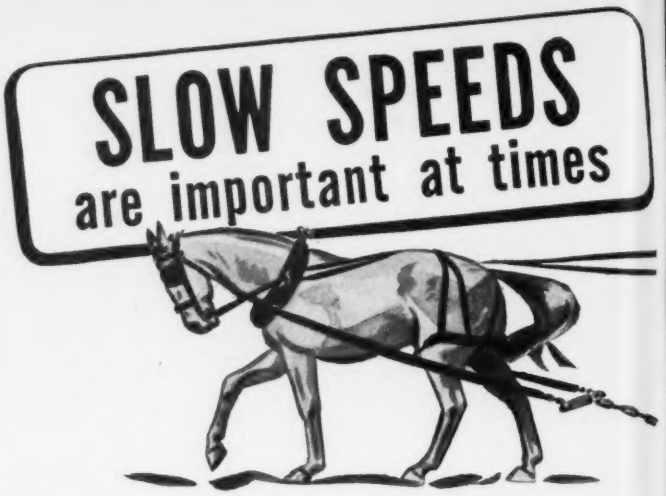



## Make your machines flexible ...install Lewellen Variable Speed Control...*Now!*

*Consider what it means to have the right speed at the right time*

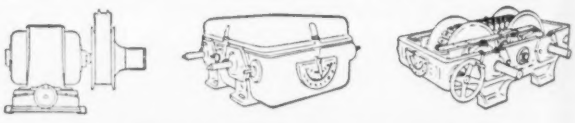
**1. INCREASED PRODUCTION**—Regulate the speed of your production machines by the simple turn of a Lewellen handwheel without stopping the machine. Avoid the waste of time to change belts and gears. Get maximum machine output—the result in operating your machines at the correct speed for the job at hand.

**2. PRODUCT UNIFORMITY**—Change machine speeds to meet lack of uniformity in materials and varying conditions in your factory. This is an important way to reduce costly rejects.

**3. MACHINE FLEXIBILITY**—Widen the work range of your machines. A fixed-speed machine can do so much, and no more. Often the ability to change speeds makes it possible to meet exact quality standards. Usually, new operators can be taught easier by reducing normal speeds.

**Why not avail yourself of the experience of Lewellen Engineers who pioneered variable speed control more than 40 years ago? Wire, phone or write TODAY!**

**LEWELLEN MANUFACTURING COMPANY, COLUMBUS, INDIANA**

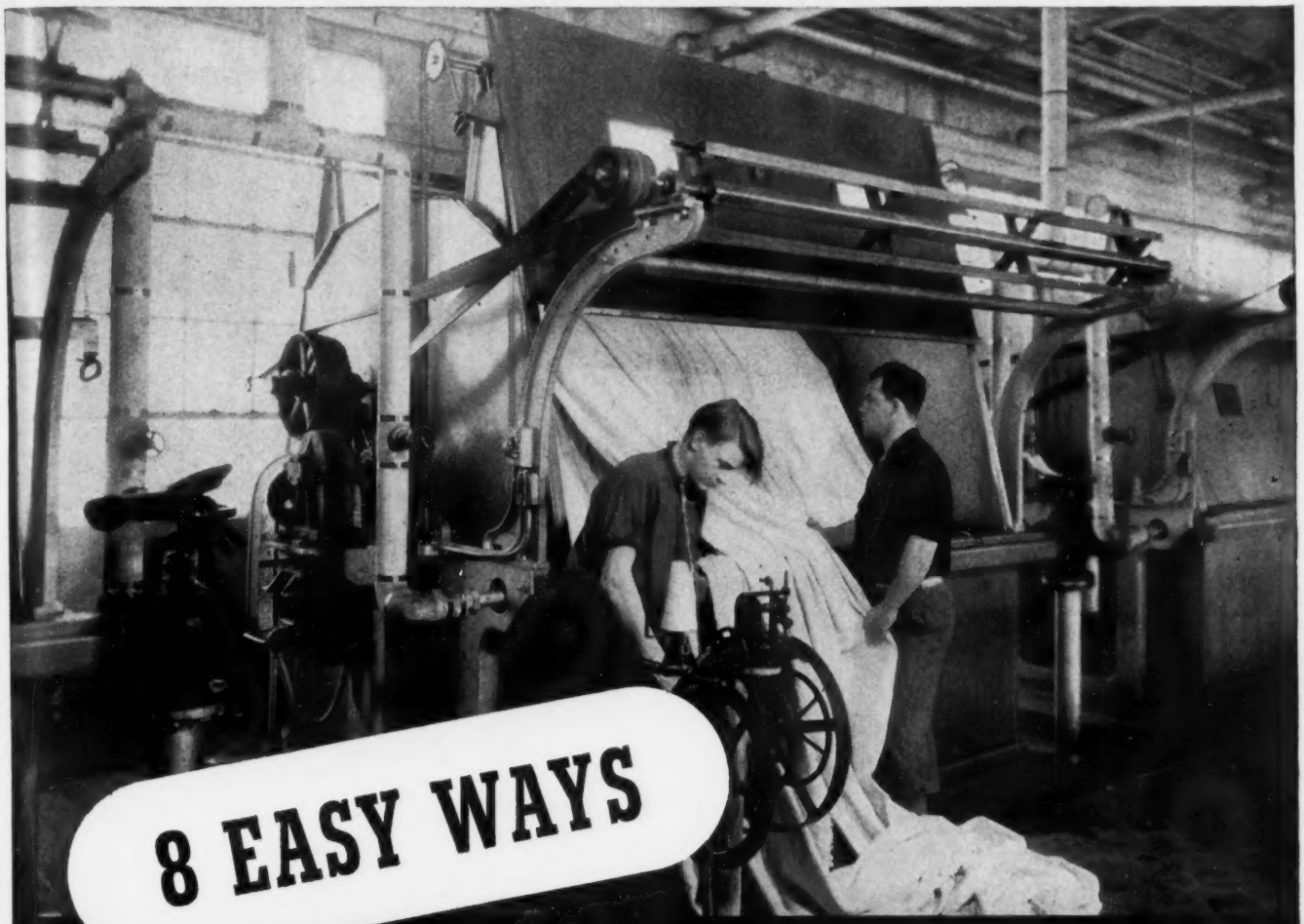


# LEWELLEN

*Variable Speed* } **TRANSMISSIONS MOTOR PULLEYS**

**★ Lewellen knows speed control**

Installed several years ago, these machines are giving their owners top production and low-cost service. They are made of ARMCO Stainless Steel.



# 8 EASY WAYS

# TO KEEP STAINLESS EQUIPMENT IN TIP-TOP SHAPE

Orders for millions of service uniforms plus civilian requirements are putting a heavy burden on America's textile mills. Unfailing production and long, trouble-free service life are doubly important now—to you and to the nation.

Here are 8 rules of good practice that will help assure long service life for textile equipment made of ARMCO Stainless Steels.

1. All machines should be drained and cleaned, carefully removing all surface deposits, once a week.
2. Expose stainless steel equipment to air after cleaning. If this is not possible, the use of alkaline or oxidizing cleaning solutions will be helpful.
3. If lint or solid particles still cling after washing, the unit should be thoroughly scoured with one of the popular brands of household cleaners.
4. Ordinary steel wool *should never be used.*
5. Should discoloration appear on the surface of stainless steel it should be removed promptly by a mild scouring compound.
6. Do not hold solutions of reducing acids in equipment longer that six or seven hours.
7. Where operating conditions are severe, use polished stainless steel equipment.
8. When soldering, use silver solder or a solder with high tin content.

*Write for a copy of* ARMCO *folder, "The Advantages and Care of Stainless Steel Equipment." The American Rolling Mill Co., 1061 Curtis St., Middletown, Ohio.*

MADE OF ARMCO STAINLESS STEEL

**THE AMERICAN ROLLING MILL COMPANY**

# "Take It From Me!

## I KNOW!

"Globe is meeting Government specifications for dyeing yarns. They're taking care of their old customers too, for all kinds of yarn dyeing."

That is true within the necessary limitations of war-time production schedules.

***It is still true that—***

**YOU CAN RELY ON GLOBE**

1865 **Globe DYE WORKS CO.** 1943

We are dyers, bleachers and mercerizers of cotton skein yarns and warps.

●

Dyers of rayon, spun rayon, Aralac, nylon and novelty yarns.

**FRANKFORD, PHILA., PA.**

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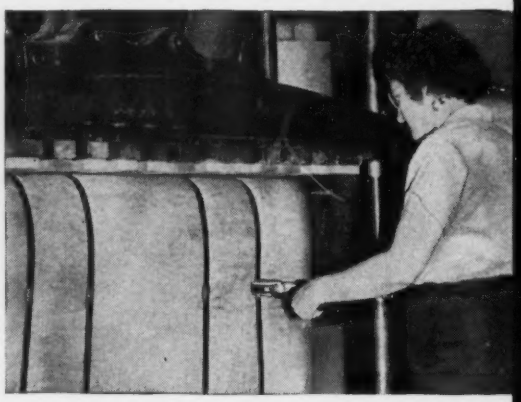
**IT'S *"Bound to Get There"* WHEN YOU..**

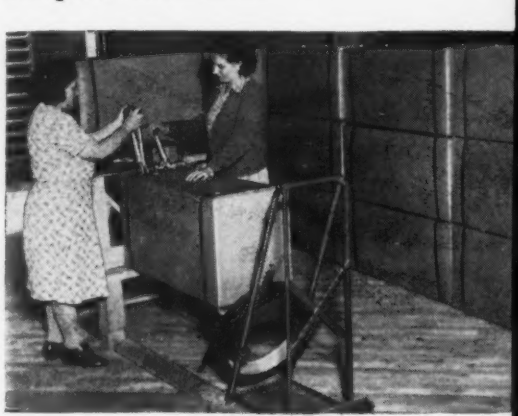


## ..USE ACME BALE TIES AND STEELSTRAP

Wartime speed-up requirements are easily met with Acme Bale Ties and Steelstrap, applied with fast-operating Acme strapping tools.

Acme Bale Ties and Steelstrap have a clean finish and smooth edges. Available in all widths and gauges—in continuous length coils or cut lengths. There are Acme tools and accessories for every need—the Acme No. 9 Sealer, for example, is a favorite in the textile industry. It is a lightweight, heavy-duty bale sealing tool, which makes possible the strongest joint with minimum effort.

And for carton packs—many mills are using Acme Steelstrappers...fast, economical method of strap application. Acme Bale Ties and Steelstrap meet all Federal Strapping Specifications. Write today for complete information.



*Textile products are made safe for their journey to an unknown destination. Ordinarily one girl would do the complete strapping job, but the bulkiness of the package necessitates a second employee to assist in handling the shipment.*

**ACME STEEL COMPANY**

**General Offices: 2838 Archer Avenue, Chicago, Illinois**

**Atlanta, 603 Stewart Avenue, S.W. · Boston, 146 Summer Street**
**New York, 103 Park Ave. · Philadelphia, 201 Lafayette Bldg.**

ACME STEEL CO. CHICAGO

Reg. U. S. Pat. Off.

# UNBRAKO

## Self-Locking **HOLLOW SET SCREWS** *with the KNURLED POINTS*

Where ordinary set screws fail to hold, "Unbrako" Self-Lockers stay put for keeps. Their knurled points dig in when the screws are tightened as usual so vibration can't dislodge them — yet they can be backed out with a wrench and used again and again. Apply this safeguard against breakdowns in your mill — today! "Unbrako" Self-Lockers come in sizes from No. 4 to 1½" diameter; and deliveries are better than average. Write for Catalog giving complete information.

**STANDARD PRESSED STEEL CO.**

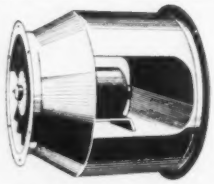
JENKINTOWN, PENNA. BOX 571

— BRANCHES —

BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

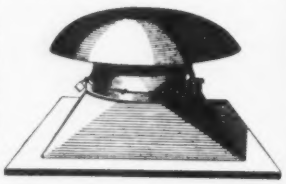
*KNURLING OF SOCKET SCREWS ORIGINATED WITH "UNBRAKO" YEARS AGO*

# 4 ANSWERS TO VENTILATING PROBLEMS



**1 HEAT AND VAPOR EXHAUST SYSTEMS**

DeBothezat Bifurcators *install right in the duct.* For handling corrosive or high temperature fumes and gases. Motor isolated from fumes in chamber open at both ends. Sizes 18 in. to 4 ft.

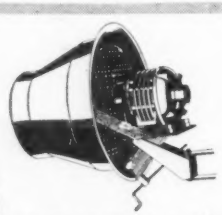


**2 ROOF VENTILATORS**

Assure positive ventilation *regardless* of temperature, humidity and wind velocity. Hinged top gives easy access to motor, fan and shutter. Light-proof; ready for blackout. Sizes: 21", 27", 36".

**3 GENERAL EXHAUST SYSTEMS**

DeBothezat offers a complete series of volume and pressure, axial-flow fans. Non-overloading power characteristic. Guaranteed performance ratings based on wind tunnel tests. Direct drives. Sizes from 18 in. through 10 ft.



**4 FOR BLOWING LINT**

"HY-V" Air Jet combines high-efficiency, axial-flow fan with conversion nozzle for blowing a column of air. Arranged for column or floor mounting. "Air Jet" can be pointed in any direction.

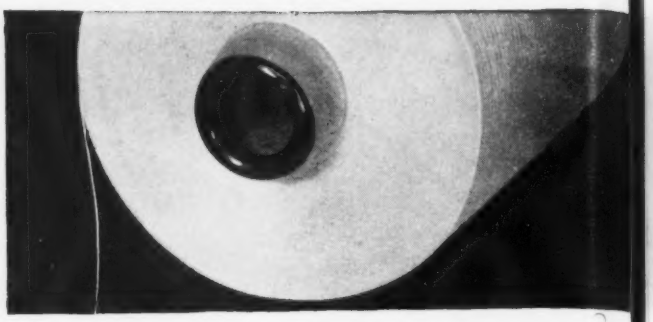
*Literature on all DeBothezat Ventilating Equipment is available on request.*

**De Bothezat**

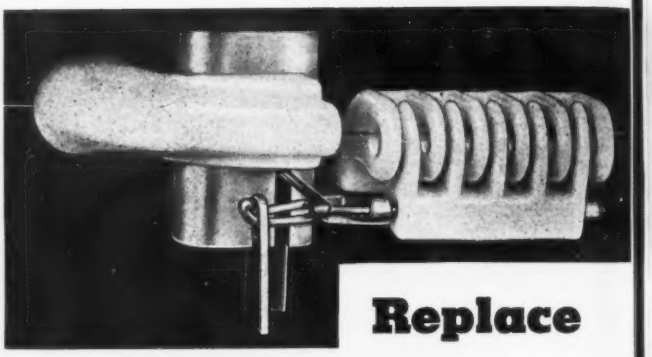
**VENTILATING EQUIPMENT**

**Division of American Machine and Metals, Inc.**
**East Moline, Illinois**





# COUNTER-BALANCED TENSION



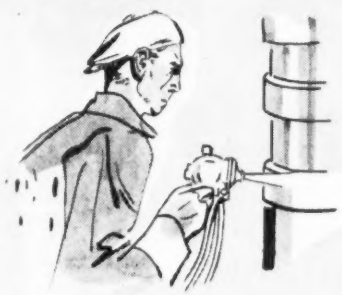
## Replace Your Present Tensions

with the only balanced thread tension on the market. A guaranteed uniform tension is obtained regardless of the thread used or the speed employed. Thousands already in use in woolen, rayon and cotton mills in all parts of the country. For full information, write

**Robert Reiner, Inc.**
**Weehawken, N. J.**
(10 minutes from Penn RR Station)

ROBERT REINER INCORPORATED

# WORK IT HARD, BUT GUARD IT WELL



***OF COURSE,*** you are driving your Aluminum Alloy equipment to the limit. We need every gallon, every pound, every foot, every piece of the products that can possibly be produced to help win the war. But, bear in mind that you must make your equipment last a long time.

***YOU CAN*** lengthen the life of hard-working, irreplaceable Aluminum Alloy equipment. Here are some ways of doing it; each must be engineered to suit the problem.

***CATHODIC PROTECTION*** has proved effective where the chemicals or cooling water employed are corrosive. Simply add zinc strips in the right places, and the corrosive attack is stopped or slowed down considerably. Alcoa engineers, with years of research on such problems, can advise you on how and where to place those zincs.

***PROTECTIVE COATINGS*** offer another means of making Aluminum Alloy parts last longer. Corrosion-resisting, pure Aluminum coatings can be applied by spraying. Oxide finishes are produced by chemical and electrolytic treatment. Baked resin coatings are very effective, where Aluminum is subjected to severe attack.

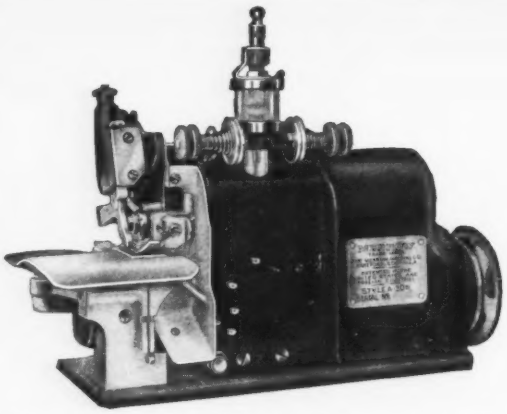
***METALLIZING***—building up worn, corroded, or damaged Aluminum parts with new metal—will give these parts a new lease on life.

***INHIBITORS*** may be the key to longer life of Aluminum Alloy processing equipment. Only a few parts of inhibitor per million of liquid are needed to deprive corrosive materials of their kick. Here again, the research of Alcoa engineers will guide you.

***ALCOA ENGINEERS*** stand ready to help you get every possible hour of service out of your Aluminum Alloy equipment. Write and tell us your problems. Aluminum Company of America, 1942 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA

# ALCOA ALUMINUM



Merrow Class A Machines, illlustrated, have made possible quality production, high speed and low operating costs to a degree greater than ever before. They are easy to handle, simple to adjust, sturdy in design, accurate in workmanship and readily adapted to many kinds of work. Let us or our distributor nearest you demonstrate the work of these machines on samples of your own fabric.

# MERROW HIGH SPEED

**OVEREDGING, OVERSEAMING AND HEMMING MACHINES**

Produce Federal Specification Stitch
Types 501, 502, 503, 504 and 505

**WAR WORK DEMANDS**

Quality Results—High Production
Convenient Handling
Minimum Time-Out for Adjustment
or Repair—Low Upkeep Costs

*Obtain Maximum Quality Production by Using a Machine Suitably Arranged for Your Work—Our Distributors or Our Direct Representatives Are on Call to Advise You Suitable Machine Arrangements for Various War Work and Proper Care and Operation of Machine.*

ESTABLISHED 1838 INCORPORATED 1894

**THE MERROW MACHINE COMPANY**

STARTING ITS SECOND CENTURY

**2803 LAUREL STREET HARTFORD, CONN., U. S. A.**

# PINS-BY CRABB

## QUALITY + SERVICE

The kind of Quality and Service you'd expect from an old well-known Company now REORGANIZED along modern lines . . . new life . . . ample stocks . . . new products. Give us a chance to SHOW you . . . it will step up your war work.

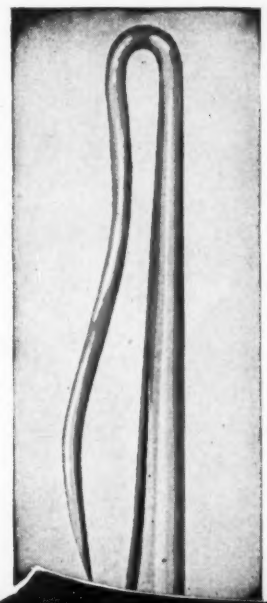
**IMMEDIATE DELIVERY**

**WILLIAM CRABB & CO. 301-3rd Ave., Newark, N. J.**

# *Why* COOPER *means*

## . . . NICER—SMOOTHER—KNITTING

## . . . OF FASTER SELLING FABRIC...



## • COOPER NEEDLES

**Cooper High-Speed Latch Needles with Non-Turnable Rivets:** Made from a special grade of needle steel which retains its strength during machining and tempering of most delicate parts. All tendency of rivet to turn and loosen (a common trouble in latch needles) prevented by specially designed, non-turnable rivet, exclusive with Cooper. Also designed to separate and hold the checks of needle permanently at same distance from each other, insuring free movement of latch. Accurate tempering and careful finishing produce a long-lived, reliable, uniform needle, capable of knitting exceptionally high-grade underwear, outerwear, and hosiery.

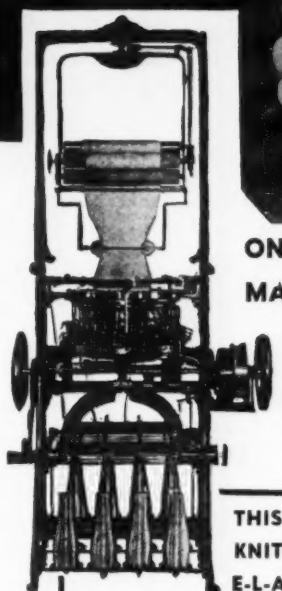
**Cooper Spring-Beard Needles:** Ever since its introduction as the first needle of this type made in the United States, the Cooper Spring-Beard Knitting Needle has maintained a position of leadership. Accurate and ingenious machinery converts specially prepared cast-steel wire into Cooper Needles. The manufacturing process includes particularly accurate tempering and rigid individual inspection of each needle. Precision measuring instruments supplement this inspection to insure absolute conformity to size and shape requirements.

The One and Only •

## COOPER SPRING NEEDLE RIB MACHINE

Ever take a piece of Cooper rib fabric in your hands, stretch it to double its normal width (while you feel every fiber of it pulling against you), and then release it? Snap! Back it goes instantly to its original width and appearance. You would think there must be rubber in it, but there isn't—this remarkable elasticity is due wholly to the fact that here we have not only a rib fabric, but a rib fabric made entirely on spring needles to which each loop is delivered without strain by a specially constructed yarn feeding device. Another, rib-top machine knits cuffs, collarettess, bottoms, borders, etc., plain or striped.

•



ONLY COOPER MAKES IT !

THIS MACHINE KNITS REAL E-L-A-S-T-I-C-I-T-Y AND STRENGTH INTO FABRICS THAT SELL

**CHARLES COOPER CO., INC., BENNINGTON, VT.**

# Textile Dewatering in 194-?

WHILE the war has limited the number of Suprex Extractors for the textile mills . . it has NOT limited the number of applications for centrifugal force.

Instead, the demands of wartime industry have been a severe and constant challenge to the Tolhurst Research Staff. In meeting these demands, this group of chemists, physicists and engineers have gained valuable knowledge and experience that will be reflected in even finer extractors when we return to peacetime manufacturing.

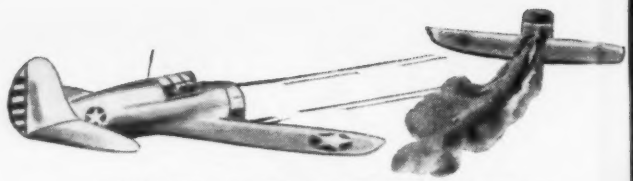
In the meantime, take the best possible care of your present extracting equipment . . . and call in the Tolhurst service man if he is needed.

ARMY (E) NAVY

**Tolhurst CENTRIFUGALS**

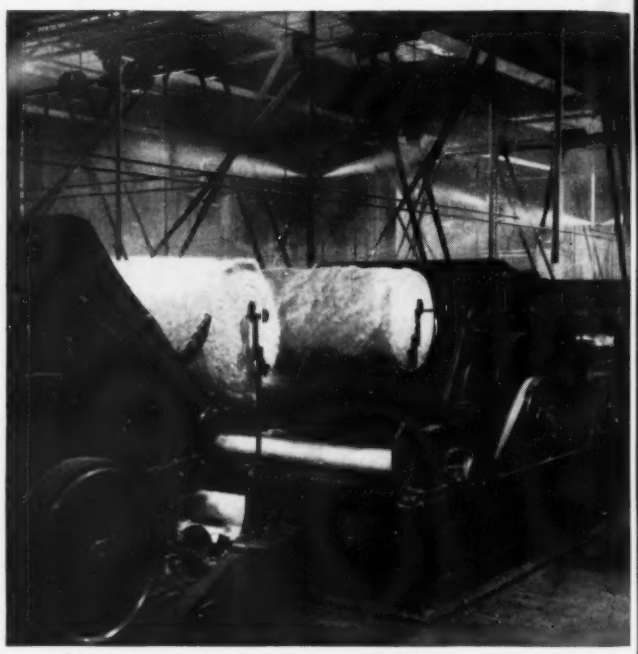
**DIVISION OF AMERICAN MACHINE AND METALS, INC.**

EAST MOLINE, ILLINOIS



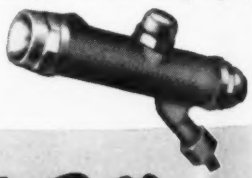
# AIR BATTLES

## Must be won ON THE HOME FRONT, too!



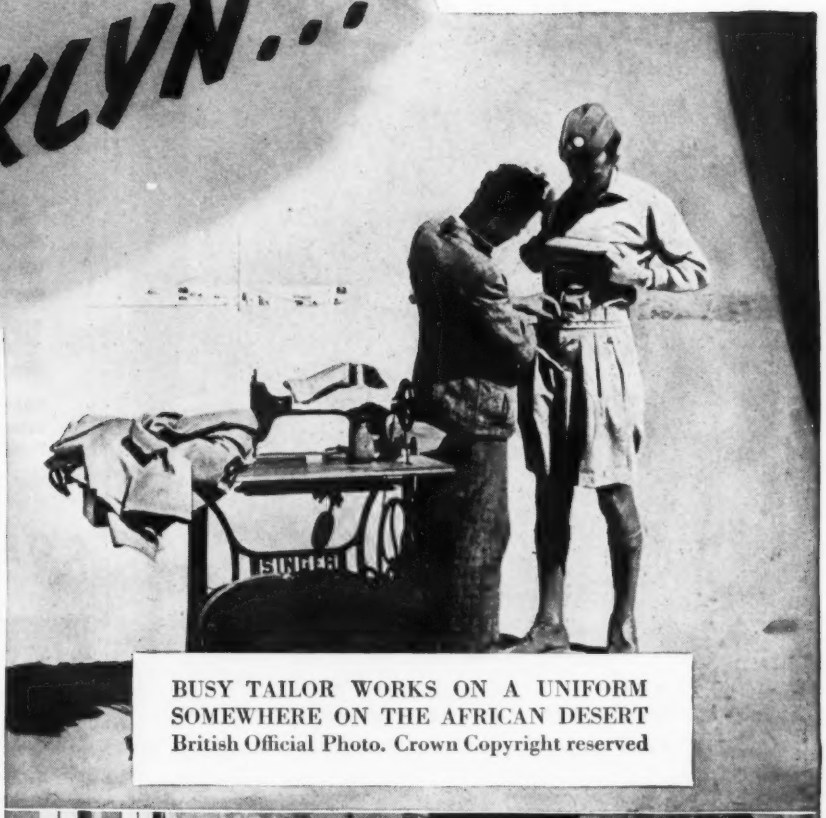
All the battles for "control of the air" are not fought on the battle fronts! Textile mills right here on the home front are constantly concerned with "air control"... without it production drags. Only with proper humidification of surrounding air can machines maintain their full rated output.

Is inadequate or poorly regulated humidification causing you to lose important production? With full speed production, is the capacity of the humidification units or the number of units adequate to allow your control stations to operate as they should? Thorough and systematic "check-ups" have put plants *back into the thick of the fight* . . . by making small changes in existing equipment. American Moistening Company, Providence, R. I. Atlanta . . Boston . . Charlotte.



**Amco HUMIDIFICATION *Speeds Production***

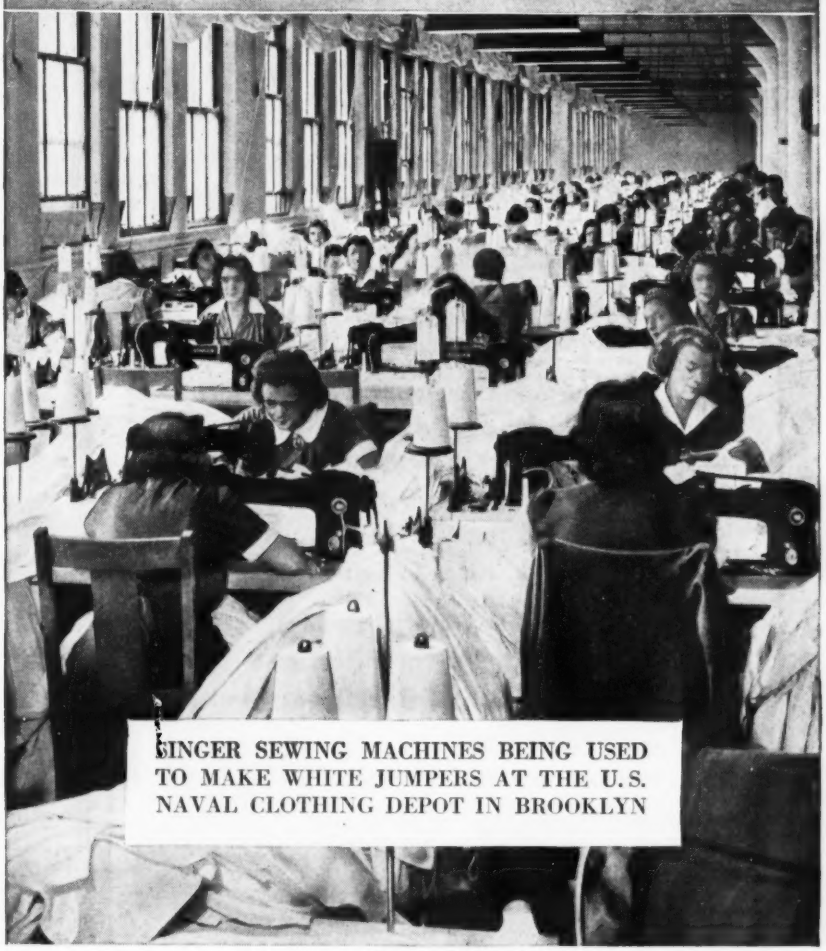
# IN AFRICA OR BROOKLYN...



BUSY TAILOR WORKS ON A UNIFORM SOMEWHERE ON THE AFRICAN DESERT
British Official Photo. Crown Copyright reserved

On the African desert, in Brooklyn, and many other parts of the world, Singer sewing machines are playing a vital part in clothing and equipping men for all branches of the armed forces.

Singer sewing machines formerly available for making hundreds of different things for civilian use are now sewing parachutes, gas masks, uniforms, tents, gun covers, shoes, powder bags, fur lined helmets, and many, many other articles needed to bring speedy victory to US. And if, like many others, you are having trouble getting Singer sewing machines, remember that Uncle Sam is our first customer, and his needs must be satisfied first.



SINGER SEWING MACHINES BEING USED TO MAKE WHITE JUMPERS AT THE U.S. NAVAL CLOTHING DEPOT IN BROOKLYN

# SINGER

SEWING MACHINE COMPANY
Manufacturing Trade Department
149 Broadway New York, N. Y.
Branches in all principal cities

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All Rights Reserved for All Countries.

Steve —
I understand that a Steel Heddle Mfg. Co. field engineer will, with no obligation, help us with our proposed change-over to Army and Navy shirting. Please have their man here early Tuesday.
Vernon

# He Rates It!

With all the military insignia that's being awarded these days, how about the men who are doing a job of

## Better Carding

They rate this imaginary medal for long hours of close attention to their jobs and the fact that most of them know that Better Carding calls for

**BOOTH**
**QUALITY CARD CLOTHING**
**51 YEARS OF SERVICE**

**Benjamin Booth Company**
ALLEGHENY AVENUE and JANNEY STREET ◆ PHILADELPHIA, PA.

# OVER 45 REASONS

There are more than 45 reasons for Dary superiority, dating back to the start of the Dary Ring Traveler Co. in 1897.

Each passing year has added improvement to Dary manufacturing methods. Today, their Travelers are doing war-time duty in many of America's outstanding Spinning mills.

Specify Dary and be assured of over 4 decades of Ring Traveler experience!

**THE**
**DARY RING TRAVELER CO.**
TAUNTON, MASS.

*See a Dary Representative TODAY!*

JOHN E. HUMPHRIES, Box 843, Greenville, S. C.
JOHN H. O'NEILL, Box 720, Atlanta, Ga.
H. REID LOCKMAN, Box 515, Spartanburg, S. C.

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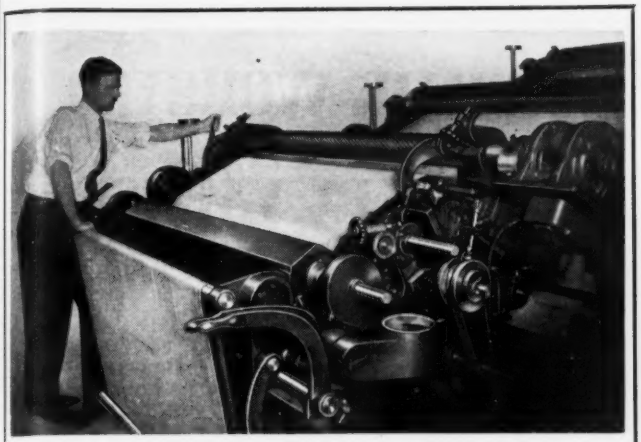
REG. U.S. PAT. OFF.
SHEETS AND PILLOW CASES

**The Most Popular Sheets in America**

**Made Stronger—Wear Longer**
**Sell Faster**

**PEQUOT MILLS**
**Salem, Mass.**



KEEP UP PRODUCTION
With

## HOGUE HONING ATTACHMENT

PATENT PENDING

*Exclusively with*

DAVIDSON SHEAR

No Time Lost Honing

ONE MAN • NO LIFT

**PARKS & WOOLSON MACHINE CO.**

SPRINGFIELD, VERMONT

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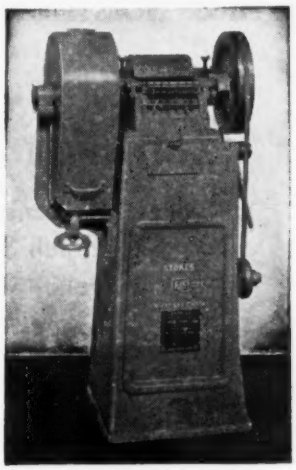
## *New! Universal Fibre Cutter*



- Makes 500 to 20,000 knife cuts per minute. Handles 4 to 8 tops or equivalent simultaneously.
- For cutting Rayon, Silk, Wool, Flax, Jute, Cotton, other Fibres—Wet or Dry.
- With 4 interchangeable cutter heads produces full range of fibres, from Flock to 8″ length.

This is an improved machine, accurate, flexible, highly productive . . . for wet or dry cutting. Features include Self-sharpening Knives, Tension Release for Feed, Hand-wheel adjustments while operating, Ball Bearings, Balanced Heavy-duty Cutter Heads, Enclosed Motor, Clutch for quickly stopping feed rolls, Variable-speed drive synchronized with feed, and others. Fully described in Bulletin 42-FC.

**F. J. STOKES MACHINE COMPANY**

6004 Tabor Road Olney P. O. Phila., Pa.

**F.J.Stokes** FJS Est. 1895

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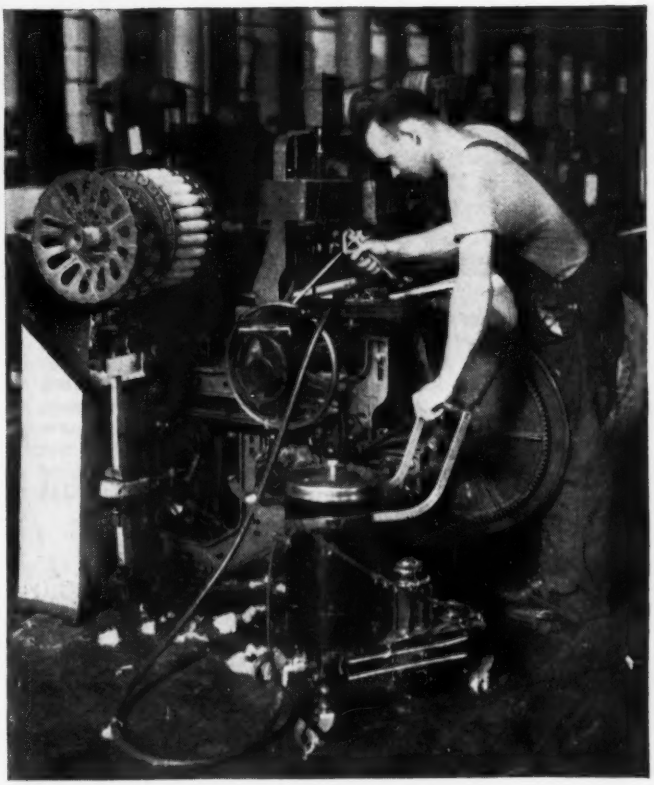
# How a Big Cotton Mill Saves Important Time—

## GUARDS BEARINGS, PREVENTS SPOILAGE!



## ALEMITE SOLIDIFIED OIL

### Meets Many Pressure Gun Needs— Reduces Number of Lubricants Required

THIS big South Carolina mill, like hundreds of others, has found that any time saving is an important time saving in these days of national emergency. So Alemite Solidified Oil is used to replace several other lubricants—saving lubrication time, avoiding confusion, guarding bearings and reducing product spoilage.

Alemite Solidified Oil is famous throughout the textile industry for its ability to do many jobs well. Use it on looms and knitters, spinning frames and carding machines, and front roll stands.

Write today for your FREE copy of the latest Alemite Industrial Lubrication Manual, which answers literally hundreds of lubrication questions. It belongs on the desk of every superintendent and maintenance man!

STEWART WARNER

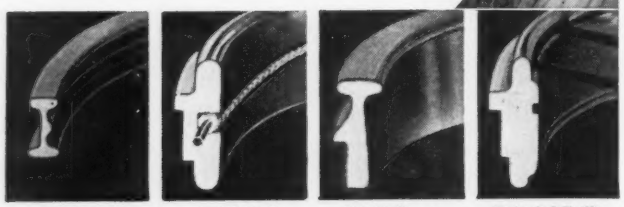
**ALEMITE** *Industrial* LUBRICATION

ALEMITE HELPS THE WORLD GO ROUND

*Ask Anyone in Industry!*

1888 Diversey Parkway, Chicago, Illinois • Belleville, Ontario

*Give him enough and on time!*



Standard reversible spinning ring. | Patented Eadie auto-lubricated twister ring. | Single flange ring for heavy twisting. | Patented Eadie grease-retaining ring.

To fill the needs of 11,000,000 fighting men for war textiles, plus essential civilian products, *with no new machinery available*—that's a REAL CHALLENGE to mill ingenuity. We've seen a number of mills step up spinning and twisting production materially by ring changes: in some cases gaining 10% or more by replacing worn rings with new DIAMOND FINISH; and in others by switching to the special Eadie lubricated designs, with gains up to 50% or more. Our COMPLETE line guides you to MAXIMUM production.

WE MAKE ALL TYPES OF HOLDERS.

**WHITINSVILLE (MASS.) SPINNING RING CO.**

DIAMOND FINISH

*Makers of Spinning and Twister Rings since 1873*

**MOHAIR WORSTED AND WOOLEN YARNS**

COLLINS & AIKMAN CORPORATION

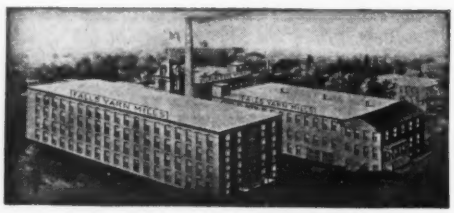
PERCY A. LEGGE *Sales Agent*

**New York • Philadelphia • Boston**

**FALLS YARN MILLS**

**WOONSOCKET, R. I.**

***Incorporated 1904***



Fine Woolen and Specialty Yarns For Weaving and Knitting

**SELL DIRECT**

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PHILADELPHIA
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Commercial Trust Bldg.

CHICAGO
C. M. Patterson
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THOS. WOLSTENHOLME SONS & CO. INC.

3300 Frankford Avenue

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**Yarns for all purposes**

French and English Spun Worsted
French Spun Zephyr
French Spun Merino

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**COTTON WARPS**

**Cotton Yarn and Warps . . Single or Ply . . White or Colored . . Carded . . Combed**

Novelty yarns—of cotton, worsted, wool, mohair, rayon—in all fashionable combinations and effects and in many original effects. Write for samples.

*Sell Direct*

**Dana Warp Mills . . Westbrook, Maine**

**MURDOCK Bobbin Holders**

***Two exclusive Features Affording Long Life:***

1. Automatic-bobbin holders equipped with holding wings electrically hardened all the way through.

2. Holding wings hold positively in position by skeleton washer—no sliding around.

We make holders for ¾" to 2½" bobbin heads, including large-package wood and paper bobbins, also special bobbins. Duplex holders take both automatic and non-automatic bobbins. Holders for all types of mules, frames, twisters, and winders.

MURDOCK & GEB CO., Franklin, Mass.

**Manufacturers of Bobbin Holders for Over Fifty Years**

*Remember this trademark for*

# RAYON TOPS

**ANDREW K. HENRY**
158 SUMMER ST.
BOSTON, MASS.



*Cotton Freshness* FOR EFFICIENCY

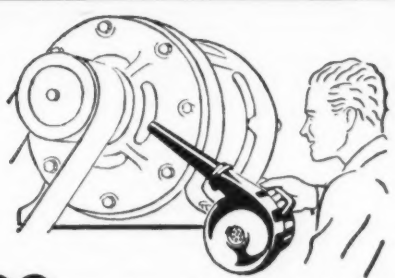
As a part of its wartime advertising program the American Cotton Industry will use dominant color space in April 25th issue of THE AMERICAN WEEKLY (circulation 8,000,000) to tell the advantages of *Cotton Freshness* for war workers.

COTTON WEEK
MAY 17 TO 22

**WORK CLOTHES MANUFACTURERS AND DISTRIBUTORS:**
Write for copy of ad and free merchandising helps. Address . . .
COTTON-TEXTILE INSTITUTE, 320 BROADWAY, NEW YORK CITY, N. Y.
*or*
NATIONAL COTTON COUNCIL OF AMERICA, MEMPHIS, TENNESSEE



**Blow Out Dust — Keep Motors and Machinery Clean with**



**TORNADO Portable Electric Blowers**

PREVENT motor burnouts, overheating and shutdowns. Keep motors and machinery clean. Blow out dust, dirt, lint, chips, etc. with the powerful, portable TORNADO Electric Blower. Quickly pays for itself in cutting repair and replacement costs.

Write for details and FREE Trial Offer

*Request details on Low-Priced Air-Raid Sirens*

**BREUER ELECTRIC MFG. CO.** 5086 Ravenswood Ave. CHICAGO, ILLINOIS



**THE OLDEST AND LARGEST**
MANUFACTURER OF
**Ring Spinning and Twister Travelers**

NATIONAL RING TRAVELER CO. PROV. R.I. U.S.A.

In the UNITED STATES
**American • Hicks • Wilson**
**United States Standard**
**Wentworth Double Duty and Gravity Travelers**

**MAKE STRONGER YARN**
**National-Etartnep Finish**
**A New Chemical Treatment**

Write Us
**National Ring Traveler Company**
354 Pine St., Pawtucket, R. I.
PHILIP C. WENTWORTH, *Treas.*
P.O. Box 1565. Providence, R. I. Charlotte, N. C.



# Run Looms Steadily

**This calls for dependable lubrication with drip-less, waste-less NON-FLUID OIL—and means increased production of spotless goods.**

**Less lubricant is needed than with dripping spattering oil—and applied less often. That's why 7 out of 10 mills use NON-FLUID OIL on looms and get "Better Lubrication at Less Cost Per Month".**

*Write for instructive bulletin*

**New York & New Jersey Lubricant Co.**
***Main Office:* 292 Madison Ave., New York, N. Y.**
Southern Agent, Falls L. Thomason, Charlotte, N. C.

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TRADE MARK REGISTERED
**NON-FLUID OIL**
IN U.S. PAT OFFICE & FOREIGN COUNTRIES

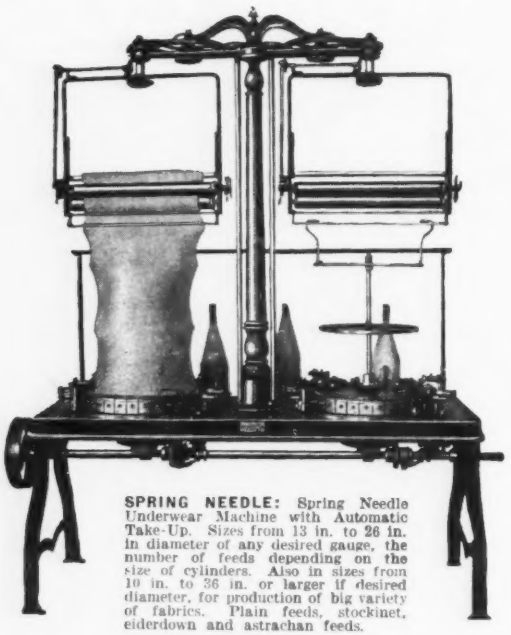
**MODERN TEXTILE LUBRICANT**

*Better Lubrication at Less Cost per Month*

# CRANE

## KNITTING MACHINES

meet the need for Speed—
for Quality and Low Cost



**SPRING NEEDLE:** Spring Needle Underwear Machine with Automatic Take-Up. Sizes from 13 in. to 26 in. in diameter of any desired gauge, the number of feeds depending on the size of cylinders. Also in sizes from 10 in. to 36 in. or larger if desired diameter, for production of big variety of fabrics. Plain feeds, stockinet, eiderdown and astrachan feeds.

CRANE Knitting Machines meet the demands of rapidly changing patterns and styles. Their middle name is *versatility* . . . plus smooth, fast running operation that eliminates expensive stops. Among their exclusive features are patented hardened Wing Burr Wheels and patented Thread Stop Motion. There's many a Knitting Mill in which batteries of Cranes are the mainstay of production.

*Let us tell you why —and how . . . just* **WRITE**

**CRANE** Improved Automatic 3 Colored

Improved Automatic 3 Colored Plain Stripes. Made in sizes from 7⅝ in. to 20⅝ in. inclusive, of any desired gauge. Measurements are back to back of cylinder needles. Knit fabrics for bathing suits, theatricals, athletic goods. Crawford stop motion applied when requested.

1870 **CRANE** 1943

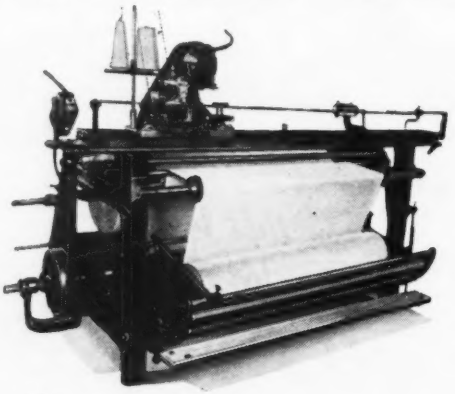
**MANUFACTURING CO.**
**LAKEPORT, N. H.**

Spring Latch Needle
**KNITTING MACHINERY**



# NEW *Dinsmore*

**Opening, Sewing and Re-rolling Machine**



SHOWING the application of the Merrow Butted Seaming Head to our No. 4 Opening, Sewing and Re-rolling Machine . . . Produces a strong, flat butt seam on cotton, silk or other piece goods . . . trims off waste edges of goods just in advance of stitching operation . . . The Merrow Butted Seaming Head can be applied to your present machine . . . *write for estimate of cost.*

**DINSMORE MFG. CO.**

See Also Textile World Year Book and Catalog

SALEM, MASS.



# Machine and Hand Knitting *Yarns*

[French-Bradford]

for

BATHING SUITS
OUTERWEAR
HOSIERY
UNDERWEAR

★

***Complete color assortments***

**American Woolen Company**

**225 Fourth Avenue** **New York**

# How to Make Factory Floor Space Produce

# TWICE

## as much

Is it by increasing working hours or running extra shifts? . . . of course such methods would do but they involve other factors you might not be ready to meet.

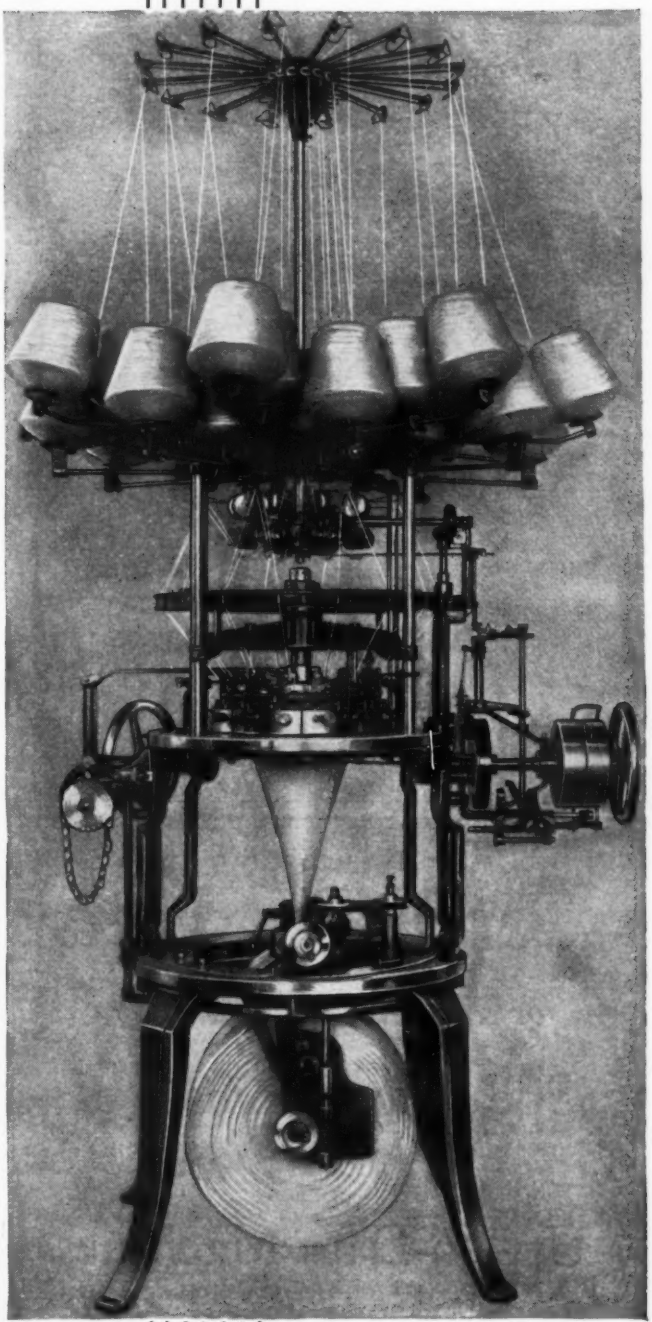
Here's the ANSWER . . .where an 8-feed machine now stands, replace it with a WILDMAN 16-feed machine, and on exactly the *same floor* space, you can,

# DOUBLE YOUR PRODUCTION

In addition to thus stepping up production, at only a third more power, by the way, you secure many other advantages in this famous machine . . . trouble-free operation, a better, more uniform product, etc. Write for complete details.

# WILDMAN

**MFG. CO., NORRISTOWN, PA.**

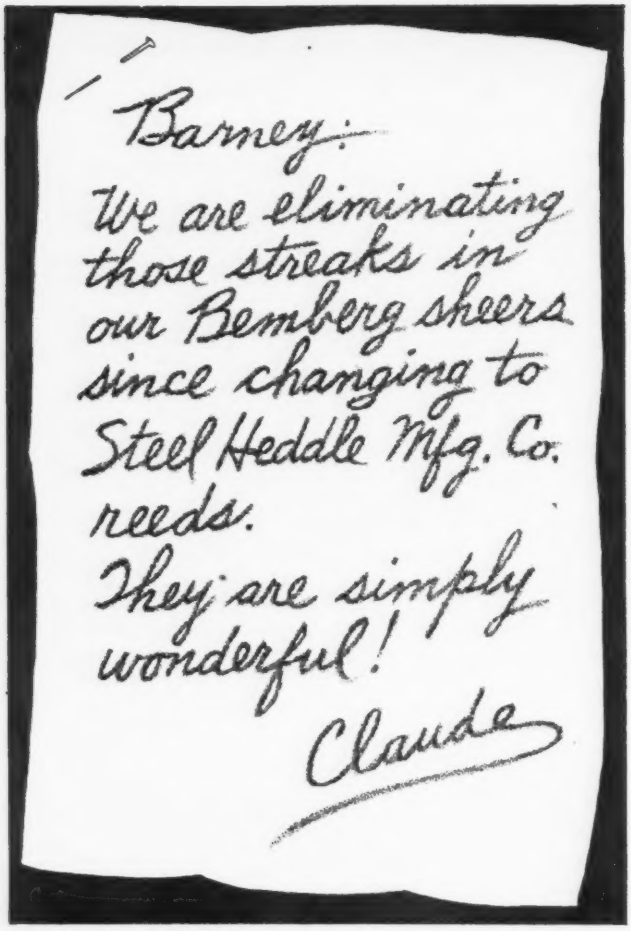


WILDMAN MULTIPLE FEED RIB MACHINE

★ FOR AMERICA

*"Throw Your Scrap into the Fight"*

AMERICAN INDUSTRIES SALVAGE PROGRAM


Barney:
We are eliminating those streaks in our Bemberg sheers since changing to Steel Heddle Mfg. Co. reeds.
They are simply wonderful!
Claude

**TOMPKINS**

CIRCULAR SPRING NEEDLE

**KNITTING MACHINES**

*FOR PRODUCING*

UNDERWEAR — OVERCOATS
SWEATERS — TERRY CLOTH
SWEAT SHIRTS — STRIPED CLOTH
DRESS CLOTH — PATTERNS
RUBBER LAY-IN FABRICS

CIRCULAR LATCH NEEDLE

**KNITTING MACHINES**

*FOR PRODUCING*

TOQUES — SCARFS
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**TOMPKINS BROS. CO.**

SINCE 1846 — SYRACUSE, N. Y.

**Acme Products**

*for seamless hosiery knitting*

Speak for themselves

Up-To-Date Machines

Needles

Economy Makers

**ACME KNITTING MACHINE & NEEDLE CO.**

FRANKLIN, N. H.

NEW ENGLAND BUTT COMPANY

Providence, R. I.

*Manufacturers of*

**BRAIDING MACHINERY**

for braiding

Elastic, Shoe and Corset Laces, Awning Braids, Lingerie Braids, Tapes, Fish Lines, Cords, and Special Braids.

Write Dept. T-4 for Catalog No. 41 containing information on braiders.

THE LOYAL T. **IVES** COMPANY EST. 1874

**SPRING BEARD KNITTING NEEDLES**

For Circular, Full Fashioned, Tricot and Milanese Knitting Frames, also Narrowing, Stand, Transfer Points and Welt Hooks for Full Fashioned Machines: Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

*Sheet Metal Specialties to Order*

**NEW BRUNSWICK — NEW JERSEY**

# STANDARD SILICATES

## KIER BOILING

For better whites and level results, use a pound of STANDARD Grade 40 Silicate with each 3 to 5 lbs. of caustic in your kier boiling formula. Troublesome stains are eliminated and scarce chlorine is saved.

Ask the STANDARD service staff about grey sour-silicate kier boiling procedure for better whites with less bleach.

ALKALI

**DIAMOND**
**ALKALI COMPANY**
**STANDARD SILICATE DIVISION**
GENERAL OFFICES: PITTSBURGH, PENNSYLVANIA
Plants at CINCINNATI · JERSEY CITY · LOCKPORT, N. Y.
MARSEILLES, ILL. · DALLAS, TEXAS

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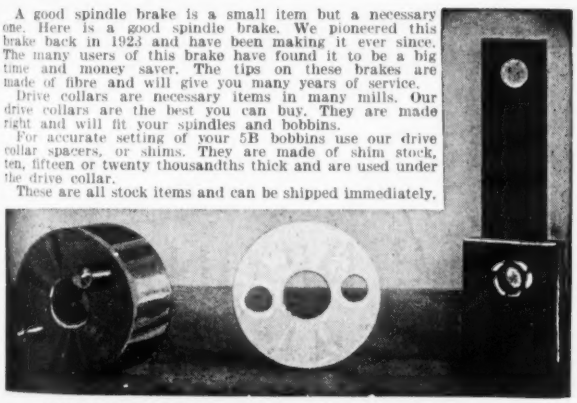
A good spindle brake is a small item but a necessary one. Here is a good spindle brake. We pioneered this brake back in 1923 and have been making it ever since. The many users of this brake have found it to be a big time and money saver. The tips on these brakes are made of fibre and will give you many years of service.

Drive collars are necessary items in many mills. Our drive collars are the best you can buy. They are made right and will fit your spindles and bobbins.

For accurate setting of your 5B bobbins use our drive collar spacers, or shims. They are made of shim stock, ten, fifteen or twenty thousandths thick and are used under the drive collar.

These are all stock items and can be shipped immediately.



**WAYNE MFG. CO.,** HONESDALE, PA.

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# WE'VE LEARNED A LOT IN OUR 50 YEARS!

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

Let us tell you about our complete Caldwell service, which includes Stainless Steel-lined tanks and tubs—round, rectangular and special shapes. *Catalog on request.*

**W. E. CALDWELL CO.**
Incorporated
2060 Brook St. Louisville, Ky.

Caldwell TANKS AND TOWERS

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# TO WIN QUICKLY AND COMPLETELY!

WE are concentrating all of our efforts — all our facilities — all our abilities — behind the well known gentleman whose likeness appears above. In doing so — we are also serving your best interests — even though we may temporarily be compelled to give you the impression that we are neglecting you. Our sole object is to help win as quickly and completely as possible. Meanwhile, we will help you users of Brinton Knitting Machines, to the best of our ability.

**BRINTON**

*Circular Knitting Machines*
3700 KENSINGTON AVE.
PHILADELPHIA, PA.

BUY UNITED STATES WAR SAVINGS BONDS

INTRODUCTION

*To a Good Bleach*

Kier boil with sodium silicate—a purified grade such as "TN". This removes more of the pectin, wax, oil and other impurities. In addition, due to the special ingredient, soluble silica, it prevents all loosened dirt from redepositing on the clean cloth.

You get that increased whiteness before bleaching which saves you chlorine or peroxide. The improvement is one that you can measure both in superior whites and in more level dyeing.

Let us send you complete data on kier boiling with PQ Silicates of Soda.

**PHILADELPHIA QUARTZ COMPANY**
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Chicago Sales Office: 205 W. Wacker Drive.
9 Plants • Distributors stocks in over 65 cities

**PQ SILICATES OF SODA**

# SCOUROLAN

*The Answer to All 3 Problems*

1 **THE 'BOSS DYER says:**
"Cloudy or streaky dyeings are ruining my disposition."

2 **THE BOSS FINISHER says:**
"Gummy handle and bad odor,—what a headache!"

3 **THE PERCHER says:**
"I have to reject more goods than I pass."

Our pamphlet, "How Bischoff Aids the Textile Finisher", tells more. Send for it.

**ERNST BISCHOFF CO., INC.**
IVORYTON • • • CONN.

# RAPIDASE

**THE STANDARD DE-SIZING AGENT**

**for cottons, rayons and mixed goods**

*For your de-sizing problems—our technical men are at your service . . . Write or 'phone.*

**WALLERSTEIN COMPANY, INC.**
180 MADISON AVENUE, NEW YORK

# D. R. KENYON & SON

RARITAN, N. J.

TENTERING and DRYING MACHINERY

# ROME SOAP MFG. CO.

WRITE US FOR SAMPLES AND QUOTATIONS

MANUFACTURERS OF
Textile, Laundry
and
Special Soaps
ROME, N. Y.

ONE MINUTE TALKS ON **WARTIME MAINTENANCE**

## Avoid Accident Hazards By Keeping Floors Clean

Don't let slippery floors penalize your production! Or deprive your mill of valuable, vital man-hours! Play safe! Keep your floors CLEAN by washing them the EASY, FAST Oakite way. It removes all oil, grease, starch and dirt . . . gets rid of that dangerous slippery surface film which is a frequent cause of serious accidents due to slipping and falling.

**NEW DIGEST *FREE!***

Describing 54 different, commonly-recurring jobs, this NEW Oakite DIGEST will HELP you speed-up essential mill maintenance work. Write for YOUR copy NOW!

**OAKITE PRODUCTS, INC.**
**42 Thames Street, New York, N. Y.**
*Technical Service Representatives Located in All Principal Cities of the United States and Canada*

**OAKITE** *Specialized* **CLEANING**
MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT

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CORN STARCHES, DEXTRINES, GUMS, CORN SUGARS & SYRUPS
NEW YORK, N. Y. - - - - CEDAR RAPIDS, IOWA
SOUTHERN OFFICES: ATLANTA, GA. - - - - SPARTANBURG, S. C.

*John: Penick and Ford's Starches and Gums for sizing Corduroy warps insure dependable weaving and maximum cutting efficiency. Let's try the type they recommend. Jim*

**MANUFACTURERS OF DYESTUFFS AND CHEMICAL SPECIALTIES**

**We offer to the Textile and Allied Trades a full line of**

**DYESTUFFS**
**DYEWOODS**
**CHEMICAL SPECIALTIES**

The experience gained through many years of manufacturing quality products, progressive research policies and the faith of our customers allow us to face the present emergencies with confidence.

As in the past, we are prepared to help you with any manufacturing problems you may have. We place our experience and our research facilities at your disposal.

**MAY WE SERVE YOU?**

A FULL LINE OF DYESTUFFS
CONVERTED STARCHES
WATERPROOFING AGENTS
SULPHONATED OILS
FINISHING COMPOUNDS
PENETRATORS
DETERGENTS AND OTHER
CHEMICAL SPECIALTIES
*send for detailed information*

**COMMONWEALTH COLOR & CHEMICAL CO.**

*Main Office and Works:*
Nevins, Butler and Baltic Streets, Brooklyn, N. Y.

Philadelphia Gloversville | Chicago Kansas City | Charlotte Montreal

# SEARCHLIGHT SECTION

## EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

**UNDISPLAYED RATE:**

10 cents a word, minimum charge $2.00.

(See ¶ on Box Numbers.)

POSITIONS WANTED (full or part-time salaried employment only), ½ above rates.

PROPOSALS, 50 cents a line an insertion.

**INFORMATION:**

BOX NUMBERS in care of any of our New York, Chicago or San Francisco offices count 10 words additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

**DISPLAYED—RATE PER INCH**

The advertising rate is $5.75 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. T.W.

*NEW ADVERTISEMENTS received by 10 A. M. May 2nd will appear in the May issue, subject to limitations of space available.*

*WANTED*

## OVERSEER OF CARDING

SECOND SHIFT WORK
BY WELL KNOWN MILL

**MANUFACTURER OF REWORKED WOOL STOCK**

OPERATES FIVE OR SIX NIGHTS PER WEEK

*NO LOST TIME*
STEADY WORK FOR RIGHT MAN

**P-524,** Textile World
330 W. 42nd St., New York, N. Y.

### POSITIONS VACANT

WANTED a competent textile technician familiar with weaving, winding, designing new styles for rayon plain goods and dobbies. Also familiar with machines and looms. Position in Colombia, South America. Apply Dabah Perez & Co., 84 Franklin St., N. Y. C.

WANTED a good loom adjuster and competent mechanic to take care of rayon looms and their operation for factory in Colombia, South America. Apply Dabah Perez & Co., 84 Franklin Street, New York City.

KNITTING INSTRUCTOR with background, ability to run standard make machines; knowledge of general textiles. Textile school graduate, degree preferred. Send complete details including business experience. Permanent position to right man. P-552, Textile World, 330 West 42nd St., New York, N. Y.

### POSITIONS WANTED

SUPERINTENDENT rayon weaving. 47 years of age. Scotch Irish descent. A practical mill man who thoroughly understands any department. Expert loom man. Former Draper road foreman who came up the hard way. Can make your mill produce. Can teach your loomfixers to turn out maximum production at low overhead per loom. Might consider overseer of weaving position. Understand all classes and weaves of fabrics, rayon, nylon, cottons etc. Will go anywhere. PW-551, Textile World, 330 West 42nd St., New York, N. Y.

POSITION WANTED: Warping and Winding foreman in rayon and silk also supervisor on slashing. First class references. American citizen. Prefer New England or Pennsylvania or New York state. PW-543, Textile World, 330 W. 42nd St., New York, N. Y.

OVERSEER OF SPINNING. Now employed, want to make a change. Competent, energetic young man, thoroughly experienced. Have fine record for quality and quantity. Small family, good references. PW-544, Textile World, 330 W. 42nd St., New York, N. Y.

FOREMAN OR SUPERINTENDENT of Tricot or Milanese machines desires connection with reliable firm. 15 years experience on dress, glove and underwear fabrics. PW-545, Textile World, 330 W. 42nd St., New York, N. Y.

**(Additional Positions Wanted advertising on page 220.)**

**WANTED**

## Superintendent of Combing Mill

**A large New England wool combing mill will soon require a superintendent. His background of experience must be complete: scouring, carding, combing and other related processes incidental to the manufacture of a high quality product now used extensively in the war effort. Our post-war plans will result, we believe, in an expansion of our present volume production and therefore we desire a man who can satisfy our strict requirements for years to come.**

**Realizing that the man for this position must be well paid, we are prepared to offer an adequate starting salary. Meeting satisfactorily our planned schedules of increasing production and quality levels will result in further salary raises and bonuses based on his effective performance.**

**We invite confidential replies from qualified men but they must be complete in order to receive our careful consideration in filling this important position. Please write:**

**P-534,** Textile World
330 W. 42nd St., New York, N. Y.

*Wanted*

## Superintendent of Worsteds

A textile company seeks a superintendent for its mill in New England employing from 2000 to 3000 operators. The products involve all processes for worsteds from wool in grease through burling and mending. The applicant must fully know them and when employed he must demonstrate his ability toward one constant objective: better quality at lower cost.

An attractive initial salary supplemented by bonuses based on periodic performance are offered to the man who fulfills our requirements. Write complete information about yourself, your training, your experience, etc., in a confidential letter addressed to

**P-512,** Textile World
330 West 42nd St., New York, N. Y.

**Over Forty Years of Dependable and Confidential** **EMPLOYMENT SERVICE**
for textile mills, converters and selling houses requiring managers, superintendents, stylers, designers, salesmen, overseers, second hands, fixers, etc. 'Phone, wire or write us your personnel requirements.

**CHARLES P. RAYMOND SERVICE, Inc.**
**Phone: Liberty 6547** **294 Washington Street, Boston, Mass.**

## Representatives Wanted

**By well-established manufacturer of textile machinery parts. Only New England now adequately covered.**

**RW-537,** Textile World
330 42nd Street, New York City

**PRIME LOANS TO**
CORPORATIONS—Unsecured
INDIVIDUALS—Collateralized
LARGE Sums—LOW annual rates
**COLLATERAL DISCOUNT CORP.**
**Graybar Bldg.—New York City**

*To*

## Hosiery Manufacturers

English Wholesale Ladies Hosiery Specialist would like to be sole distributor of fine gauge stockings made by first class American full fashioned hosiery manufacturer. Well established among all the leading stores. Looking ahead with a view to postwar trading policies. Please contact

**RA-535,** Textile World
330 West 42nd St., New York City

## PROFESSIONAL SERVICES

**LANCASTER, ALLWINE & ROMMEL**

Interesting booklet concerning Inventions, Patents, Trade-Marks and Copyrights, together with Schedule of Government and Attorney's Fees, sent without obligation. Simply ask for "booklet and schedule."

Established 1915

**Patents & Trade-Marks**
**Suite 448, 815—15th St., N.W. Washington, D. C.**

# WHAT "MLC" SERVICE means to you . . .

**TIME**

Are manufacturers' backlogs of undelivered machinery—even on high priority orders—holding up your production? Of course, more TIME would enable the manufacturer to deliver the machinery you need . . . but . . .

**TIME**

is lacking—so every expedient is being employed by textile mills to step up yardages to war-time demands for peak production. The use of good used machinery is number 1 expedient in 1943.

**TIME**

—the time needed to manufacture the equipment you need—can be saved by knowing where to locate good used equipment. Our "in stock" list includes equipment and repair parts for practically every requirement.

**TIME**

lost while shopping—or waiting for—equipment means production lost—possibly the failure to deliver thousands of badly needed uniforms or equipment to our armed forces. We are helping textile mills everywhere to avoid lost production time.

## Let us help you SAVE TIME . . .

### *Keep Production Up to the Peak*

### CRITICAL PRODUCTION EQUIPMENT AVAILABLE for IMMEDIATE SHIPMENT

1—50 spindle Altemus Yarn Reel
1—28 stick Klauder Weldon Monel Lined Non-Hoist Skein Dyeing Machine, motor driven, with Monel Poles
1—28" Copper Basket belt driven Extractor
1—48" Tolhurst Copper Basket Belt Driven Extractor
1—Proctor 2-truck Yarn Dryer with Seven Trucks
1—500 lb. Bleaching & Dyeing Kier with Circulating Pump.
3—80 spindle Hopedale Band Twisters, 4½" Rings, 5½" Gauge, Belt Driven
3—104 spindle Hopedale Band Twisters, 4½" Rings, 5½" Gauge, Belt Driven
10—50" Draper Automatic Magazine Worsted Looms, 6 harness, with warp stopmotions, belt driven
10—82" Crompton & Knowles 4x4 Box Woolen Looms, 25 harness, friction drive
2—Schultz Fulling Mills
1—66" Voelker Double Bed Cloth Press
1—set of 23 Lincoln 23" diameter by 88" face, Copper Dry Cans

This is only a partial list. Our complete list of dependable used textile machinery, equipment and supplies available for immediate shipment covers practically every production requirement. Send us your inquiry.

★

## *SMASH THE AXIS with your idle equipment*

Send us a list of your surplus equipment. We have many buyers for all types of good machinery.

★

**MACHINERY LIQUIDATING COMPANY**
(OPA REGISTRATION NUMBER 789)
*DEALERS IN QUALITY USED MACHINERY*
ESTABLISHED 1923

DOMESTIC EXPORT
31-33 W. 42nd ST. NEW YORK CITY
TELEPHONE: PEnnsylvania 6-8014
*Cable Address:* "LIQUIDATE", New York
*Also:* Inspecting, Appraising and Liquidating

## FOR SALE

Quantity NEW 12"x36" VULCANIZED FIBRE ROVING CANS. Available for prompt shipment.

1—UNIVERSAL #40 CONER, 100 spindles, equipped with late type electric head; motor driven; arranged to wind on wooden cones. Excellent condition.

**A. F. FYANS**
*Textile Machinery*
P. O. Box 454 Fall River, Mass.

---

**FOR SALE**

Sargent CONE DUSTER
Sargent 36 in. BURR PICKER
Parkhurst 40 in. duplex BURR PICKER
Parkhurst 48 in. duplex BURR PICKER
Modern Harwood 48 in. PICKER FEED
15—TOMPKINS KNITTING TABLES

**EXTRA-CYLINDERS**
(Both Spring & Latch Needles)
**KNITTING PARTS**

**BURR-WHEELS**
(All makes and Gages)

DAVIS & FURBER 80 inch NAPPER
PAYNE WINDERS & BOTTLE BOBBINS
2—McCreary DOUBLE ROLL BRUSHERS
Cameron type SLITTING MACHINES
Firsching type SLITTING MACHINES
KNITTING MACHINES—ALL KINDS

**Geo. E. Smith Textile Machinery Co.**
P. O. BOX 46 COHOES, N. Y.

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## FOR SALE

1—S & F 30" x 60" 3 cylinder Garnett with Automatic Feed.
1—S & F 30" x 60" 4 cylinder Ball Bearing with Automatic Feed.
1—Textile 72" 4 Bowl Crab.
2—James Hunter #10 Fullers motor drive.
1—James Hunter #20 Fullers belt drive.
1—James Hunter #10 Dry Mill, motor drive.
1—Broadbent 48" motor driven extractor.
3—60" Tape Condensers 144 ends.
1—P. & W. 5 Blade Centurial Shear with turner.
3—P. & W. 66" Double Shears.
1—C & M Tacking Machine.

**ROBERT H. WELSH**
211 Woodside Ave. Narberth, Pa.

---

**FOR SALE**

All types of Circular and Flat Knitting Machines, also Parts and Latch Needles. State your needs or send us a sample to match.

**A. LIBERKOWSKI**
**MELVALE MACHINE WKS.**
3322 Melvale St. Phila., Penn.

---

**FOR SALE**

## 30" LOOMS

76—Draper 30" Model E used looms in good condition. Complete with Lacey top motions, pulleys, shafting, beams, etc. Located in South.

**AMES BAG CO.**
10 East 40th St. New York, N. Y.

---

## FOR SALE

Offering four sets of Dryer Cans 23x142" Butterworth Upright Type erected nine to a set.

*Advise promptly if interested*

FS-541, Textile World
330 W. 42nd St., New York, N. Y.

---

We Buy & Sell New & Used
**BOBBINS & SPOOLS**
For Sale up to
10,000 Spools 4½ x 6"
5,000 Fibre Head Silk Spools
20,000 8" Mule Bobbins
20,000 7" Cone Shuttle Bobbins, etc.

**JOHN LOTZ**
6316 N. 13 St. Philadelphia, Pa.

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# NORMAN M. McDOWELL

342 E. 142 St. ASSOCIATES Bronx, N. Y.
*REBUILT & USED* BUY WITH CONFIDENCE MELROSE 5-1772-3

**DYEING & FINISHING**

1—CALENDAR 5 bowl 47" width, Mycock Expander.
4—EXTRACTORS 30" to 48" Copper Tinned baskets.
1—SKEIN DRYER 46" horizontal roller chain.
1—RAW STOCK DYEING MACHINE 1000 lb. capacity.
1—P & S 88" RAW STOCK DRYER complete.
2—FOLDERS 46" goods, cloth & ceiling types.
5—FULLING MILLS, Double Compartment units.
1—GRINDER (Napper) adjustable up to 96" rolls.
2—NAPPERS, D.A. Woolen 80" & 90" Machines, 20 and 24 roll units complete Folder Takeoff.
5—NAPPERS, Knitgoods 72" & 80" Machines, 20 roll units complete Folder Takeoff.
4—NAPPERS, D.A. Cotton 80", 20 roll units, self oilers complete Folder Takeoff.
2—ROTARY STEAM PRESSES 66" wide, double bed machines, expander rolls & steam connections.
3—MANGLES 42" to 66" widths, 2 & 3 roll units.
2—SQUEEZE SETS, 2 roll units, both rubber complete with stands and bearings 60" wide on rubber.
2—QUETCHES 60" to 67" widths, 2 & 3 roll machines.
12—SHEARS 1 to 4 Blade units, 40" to 88" goods.
2—SEWING MACHINES Rotary Foot Power and 50" Railway types.
3—TENTER FRAMES, clamp style 30' to 60' long opening up to 52" width, steam drum batcher takeoff.
2—CLOTH TESTERS.
1—TUBER 60" goods wind from tube to tube with clock.
2—DOUBLERS 66" folding & measuring with clocks.
2—WOOLEN ROPE WASHERS 8' and 10' Boxes.

**CARDING & SPINNING & WEAVING**

2—Sets D&F 3 cylinder Cards 60 x 48.
8—Sets 3 CYLINDER CARDS 48 x 48 complete.
3—TAPE CONDENSERS, 144 ends each for 60" cards.
1—CONE DUSTER 10' with feed, picker complete.
12—Sets MULES 200 to 336 Spindle units 1⅞" to 2¼" Gauge.
74—LOOMS, REBUILT 35½" to 49½" Reed Space, with NEW HEAVY LAY, 8¾" Bobbin, NEW R. I. Warp Stop Motions. Will weave #8 Duck.
8—SPOOLERS 40", compressors, clocks & stands.
2—TWISTERS 72 Spindle units, 4½" Gauge, 3½" Ring.

**MISCELLANEOUS**

BRISTLE BRUSHES 38" to 80" widths.
Buffalo #4 BLOWER.
EXPANDER ROLLS 63" to 95" widths.
RUBBER SQUEEZE ROLLS 41" to 50" widths.

ONLY A FEW OF THE MANY UNITS AVAILABLE. SEND FOR OUR COMPLETE CATALOG.
LIST YOUR SURPLUS EQUIPMENT WITH US.

---

# JOHN J. McCLOSKEY, Inc.

MANUFACTURERS AND DEALERS

## TEXTILE MACHINERY OF ALL TYPES

APPRAISALS WOOLEN—WORSTED—COTTON LIQUIDATIONS
NEW AND USED
Philadelphia Office: 140-142 So. Front Street. Factory Warehouse: Collingswood, N. J.

---

# Standard Mill Supply Co.

**USED TEXTILE MACHINERY and SUPPLIES**

*For over 45 years serving domestic and export customers.*

1064-90 MAIN ST., PAWTUCKET, R. I.
512-14 W. 4TH ST., CHARLOTTE, N. C.

---

# HARRY STEPHENSON

IMPORTER, DEALER AND MANUFACTURER

## TEXTILE MACHINERY AND APPLIANCES

NEW AND USED
River Works, Andover, Mass.

---

# GAINES TEXTILE MACHINERY CO.

*Dealers in Rebuilt and Guaranteed*
*Yarn Winding and Spinning Machinery*

141-45 West 17th Street New York, N. Y.

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**DRAPER AUTO. LOOM BOBBINS FOR SALE**
**350,000 BOBBINS, 3 RING, 8" CLUTCH SPD.**
**450,000 BOBBINS, 3 RING, 7"**
(BOBBINS GOOD AS NEW)

BOX 495 **L. J. McCAFFREY & SON, INC.** PAWT, R. I.

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## FOR SALE

1 Flax Tow Finisher Card by Combe Barbour equipped with Mackie automatic card feeder and drawing head.

FS-553, Textile World
68 Post St., San Francisco, Calif.

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## TO HELP YOU

*Sell Equipment You No Longer Need*

"Searchlight" Advertising

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## New "SEARCHLIGHT" Advertisements

received by May 2nd will appear in May issue, subject to space limitations.

•

*Departmental Staff*
TEXTILE WORLD
330 West 42nd St., New York City

A MESSAGE FROM

TOJO . . .

*This Japanese writing is an exact translation of our headline.*

「コンソリデーテッド」と取引するな

# "Don't get it from CONSOLIDATED"

TOJO

"Don't get it from 'Consolidated'!" would be the bland counsel of the wily Jap. In other words, DON'T save days, weeks, months of Time on Equipment DELIVERIES!

Excuse, please, Messrs. Hirohito and Tojo, but American Industry IS buying heavily from "CONSOLIDATED" — thus SAVING TIME getting War Production Equipment into ACTION, turning out everything that will make YOUR time run short! You started it, Hirohito . . . and "CONSOLIDATED" and other Used Equipment Dealers are helping America to FINISH it—and YOU with it. NOT "so sorry!"

**PRINTING MACHINES**

9—Rice, Barton & Fales 3 to 8 Color Print Machines, 40" to 64" wide, with color pans, mandrels, star and furnisher gears, etc.

**CALENDARS**

2—Van Vlaanderen Ball Bearing Calendars, 50" face.
2—Morrison Ball Bearing Calendars, 50" & 60" face.
1—Morrison 3-Roll 64" Ball Bearing Calendar.
1—60" Embossing Calendar.
1—Van Vlaanderen 46" Calendar.

**PALMER QUETCHES**

3—Morrison & Van Vlaanderen 60" & 72" Palmer Quetch Units.

**AGER**

2—Agers, 6' wd, 9½' high, 30' long, B. B. brass rolls.
1—Textile Fin. Co. Ager, 5' x 10', with 50" brass rolls.
3—G.M.C. Agers, 10', 20' and 30' long.

**KETTLES**

2—Textile 200-gallon Copper Jacketed T Tilting Agitated.
2—Textile 100-gallon Copper Steam Jacketed Tilting Agitated.
2—Textile 70-gallon Copper Steam Jacketed Tilting Agitated.
3—Textile Copper Steam Jacketed Tilting Agitated Kettles, 50, 40 & 30 gallons.

**LOOP AND NET DRYERS**

3—National Loop Dryers, 28', 33' and 65' long.
2—Proctor & Schwartz Airlay Dryers.
2—Van Vlaanderen 50" & 66", 5 & 7-Tier Dryer, fin heaters.

**PRINT PADDER**

1—3-Roll Print Padder, Dry Tower with unit heater.

1500 Standard W-Bore Copper Print Rollers with designs, 28" to 45" lg, 14" to 20" in circumference.

**Idle Equipment that's too good to SCRAP**

**Should be put to work Or it's helping the JAP**

**Send us your list NOW**

**COLLOID MILLS**

1—Charlotte Homogenizer or Colloid Mill.
1—10" Premier Colloid Mill.
1—Premier 6" Colloid Paste Mill.

**DYE JIGGS**

1—Battery 4-Butterworth Stainless Steel lined Dye Jiggs, 45" face.
3—Werner 50" Stainless Steel Lined Jiggs.
1—Werner 57" Stainless Steel Lined Jigg.
4—Lincoln 50" Dye Jiggs.

**OFFERING COMPLETE COTTON, SPINNING AND WOOLEN PLANT.**

**CAN DRYERS**

300—Drying Cans, 50" to 108" face, 23" to 50" diameter.

**SCOURING & DYEING MACHINES**

1—Sargeant 3-Bowl Skein Scouring Mchn.
10—Klauder-Weldon Skein Dyeing Machine 20, 28, 30 sticks, hoist type.
1—Obermeier Package Dyeing Machine.
1—Obermaier 400# Vertical Package Yarn Dyeing Machine, with Wash-Off Kettle and two motor driven Centrifugal Pumps.

**TENTER FRAMES**

2—Windsor & Jerauld 50' Frames with Morrison stainless steel clips, 44" & 54" wide.
3—Van Vlaanderen and Windsor & Jerauld 60' & 70' Frames.
1—Morrison 90' Tenter Frame.

**SKEIN DRYER**

1—Phila. Dry Machine Co. Hurricane Continuous Skein Dryer.
4—Frank Bailey Truck Dryers with extra trucks, for skein and tubed yarn.

**FULLING MILLS**

6—Rodney-Hunt Fulling Mills, Gear Drive.

**DOUBLERS**

3—Parks & Woolson 46" & 66" Doubling, Reeling and Measuring Machines.

**FLAT FOLDERS**

6—Elliott & Hall Flat Folders, 42" to 60" wide.

**OPEN WASHERS**

1—Continuous Full Width Washer, consisting of 10 sections, 4 nips each section, 66" face rolls.
3—Rodney Hunt Full Width Washers, 66" x 12" rubber squeeze rolls.
1—60" Continuous Boil-Off Machine, Steel Tanks.
1—Grey Washer, 6-Nips, 60" wide, rubber rolls, iron tub.
1—4-Nip Grey washer 54" wide, brass & rubber rolls, iron tub.

**STEAMERS**

2—Steamers, 8" dia. x 20" long.
1—Devine Steam Jacketed Steamer, 5' dia., x long.

**ROPE SOAPERS**

2—Rodney Hunt 10' Rope Soapers.

**SHEARS**

3—Parks & Woolson Double Blade Shear, 66" with list saving device.
1—Parks & Woolson 3-Blade Shear, 60½", with list saving device.

**BLEACH HOUSE**

2—Bleach House Jay Pilers.
10—Bleaching 4-5 Ton Kiers, vomit type.
1—5-Ton Kier, Circulating type, with external heater, pump and motor.
2—Lincoln Double Roll Chemical Squeeze Rolls.
2—Arlington Rope Squeezers with clutch pulley drive.

**BEAMERS-BATCHERS**

4—Van Vlaanderen 50" & 55" Beamers.

Misc: Scrutchers, Expanders, Generator Sets, Trucks, Air Receivers, Sewing Machines, Rubber Lined Tanks, Modine Heaters, Motors, Exhaust Fans, Pleaters, Mandrils, Doctor Blades, Gears, Lathes, Portable Agitators, Accumulators, etc.

**DECATERS**

2—David Gessner & Parks & Woolson 72" and 48" wide, complete with Nash Pumps.

**RUBBING MACHINES**

18—Werner 50" Rubbing Machines.
1—Werner 50" Felt Disc Rubbing Machine.

**DYE BECKS**

29—Dye Becks, Morrison, Van Vlaanderen and General, 3' to 8', stainless steel and wood boxes.

**EXTRACTORS**

3—Van Vlaanderen 60' Rubber Lined & Copper Extractors.
1—50" Copper Basket Extractor, underdriven Centrifugal machine, complete.
10—Burkhardt, Van Vlaanderen, Fletcher, Tolhurst and Haring & Stephen, 48" machines, copper baskets.
4—Tolhurst and Van Vlaanderen, 40" to 44" Copper lined Extractors.
1—King & Gerber 42" extractor, copper basket, self balancing type.
10—Tolhurst, American Laundry, Adams and Troy Copper Lined Basket Extractors, self balancing, 40", 32", 28, 26" and 20".

**WORSTED SPINNING FRAMES**

25—Ring Spinning Frames, 160 spindles each, 3½" pitch, 8" traverse, 1¾" ring, 4" front roll.

**BUTTON BREAKERS**

2—Textile & Van Vlaanderen Button Breakers, 60" & 72", brass rolls.

**PADDERS, MANGLES, QUETCHES**

4—Textile 50" 2-Roll Dye Padders.
7—Butterworth and Textile 50" 2-Roll Starch Mangles.
2—Textile 80" 2-Roll Mangles.
8—Butterworth and Morrison 2 and 3-roll Quetches, 50", 60" and 72" wide.

**MERCERIZING RANGE**

1—Complete Mercerizing Range.

**WATER SOFTENERS**

1—Permutit Water Softener, 103" high, 63" wide, cleanout 13" x 17".
2—10 x 10 Vertical Softeners, Zeolite piping, valves, meters and fittings.
2—Pressure Sand Filters, 8' dia., by 20' long, complete with pipe connections, valves and fittings.

**SINGEING MACHINE**

1—80" 2-Burner Singeing Machine.

**VACUUM PUMPS**

2—#3 Nash Pumps.
1—#2 Nash Pump.

FOR 25 YEARS A SYMBOL OF CONFIDENCE

Supplying Textile Equipment for the DYEING FINISHING BLEACHING PRINTING WEAVING SPINNING OF RAYON COTTON WOOL WOOL FABRICS AND WORSTEDS

SAVE TIME *to* SAVE AMERICA

# CONSOLIDATED PRODUCTS CO., Inc.

Address Inquiries to TEXTILE DIVISION, PATERSON, N. J., 5th Ave. & McClean Blvd.
Cable Address: Equipment, N. Y. Tel. ARmory 4-6540

New York City Office: 15 Park Row Tel. BArclay 7-0600

Supplying Equipment for: PROCESS • TEXTILE • MINING • FOOD • CHEMICAL • PLASTICS • CEMENT • PAINT • ROCK PRODUCT • RUBBER

## POSITIONS WANTED

(Continued from page 216)

PRODUCTION ENGINEER open for executive position. Licensed Professional Engineer with wide consulting, management, production, research and development, process simplification, trouble shooting and quality control experience in the textile industry. PW-546, Textile World, 330 W. 42nd St., New York, N. Y.

ADVERTISER successful technologist, designer, styler on cotton, wool and mixtures, spinning and weaving. Also narrow fabrics, elastics all types, wants connection manufacturing or selling; over draft age; youthful outlook. Extensive experience solving mill problems; salary secondary to opportunity. PW-549, Textile World, 330 W. 42nd St., New York, N. Y.

TEXTILE ENGINEER desires position. 16 years experience, production planning, wage, incentive time study, cost and manufacturing problems. PW-550, Textile World, 330 W. 42nd St., New York, N. Y.

## FOR SALE

WORSTED SPINNING MILL and Machinery for sale. At present spinning more than 10,000 pounds per week government yarn. Purchaser can continue or spin his own yarn. FS-547, Textile World, 330 W. 42nd St., New York, N. Y.

## WANTED

TEXTILE & HOSIERY EXPORTERS seeking new profitable market (full development post-war) should communicate at once:—W. B. O'Rourke & Company, Textile Agents 32, Wicklow Street Dublin, Erie.

## FOR RENT OR SALE

**Dyehouse, well equipped; waterpower and splendid water for bleaching and dyeing. For particulars,**

**WILLIAM C. JOHNSON**
**P.O. Box 1255 Providence, R. I.**

*Don't forget the*

## BOX NUMBER

When answering the classified advertisements in this magazine, don't forget to put the box number on your envelope. It's our only means of identifying the advertisement you are answering.

*Available*

## Textile Plant Engineer

### and, or Mechanical Superintendent

Age 45, American, Married; 25 years Mechanical and Electrical experience, including 13 years as executive in Wool, Cotton, and other, medium and large organizations covering maintenance, new work, layouts, construction, etc., for Manufacturing and Finishing; Steam and Hydro Power Plants. Education includes Mechanical Engineering, Power House Electricity and Business Management. Now employed.

Desires a larger position, especially where diplomacy is needed to remove antagonisms and coordinate individual efforts.

Salary is important but secondary to the opportunity. New England preferred. Allow him to show you. Write for his Business Record.

**PW-542,** Textile World
330 West 42nd St., New York, N. Y.

## POSITION WANTED

**Have to offer exceptional experience in all phases of dyeing, bleaching and finishing of textiles. Desire connection with progressive concern in the U. S. or Latin America. Connection either permanent or in advisory capacity, age 42, married, American citizen, thorough technical training, executive ability.**

**PW-530,** Textile World
330 West 42nd St., New York, N. Y.

## YOUNG TEXTILE EXECUTIVE

**. . . Interested in essential wartime work. Twelve years in Textiles. Thorough knowledge in yarn spinning, weaving, dyeing and finishing. Graduate (Wharton School) in Industrial Management. Experience as plant superintendent in charge of production and purchasing. Knowledge of fabric analysis and cloth construction. Age 39. Married. Two children.**

**PW-548,** Textile World,
330 West 42 St., New York City

## Pawtucket Jacquard Harness Building, Repairing

*All work guaranteed*

**P. O. Box 17 Pawtucket, R. I.**

*for Quick ANSWERS to business problems, use the Searchlight Sections of:*

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| American Machinist | Electronics |
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| Coal Age | Food Industries |
| Construction Methods | Power |
| Electrical Contracting | Product Engineering |
| Electrical Merch. | Textile World |
| Electrical World | |

*Departmental Staff*

**McGraw-Hill Publishing Co.**
*330 W. 42nd St., New York City*

# WANTED

## WANTED

## LOOMS FOR COMMISSION WEAVING

Fifty box looms to run Acetate Rayon warp and Rayon Crepe filling. Write

**W-531,** Textile World
330 West 42nd St., New York, N. Y.

## WANTED!

Extractors, 40", 48", 60" baskets, copper or rubber lined, belt or motor driven; Nash Vacuum Pumps; Centrifugal Pumps; Colloid Mills; Air Compressors, from 100 to 300 cfm; Storage Tanks from 5000 to 15,000 gals.

**We will pay top prices for any of the above. Send full details for quick action.**

**BRILL EQUIPMENT CO.**
183 VARICK STREET NEW YORK

## WANTED

**Machinery to produce 600 pounds of fingering yarn per day.**

**W-539,** Textile World
68 Post Street, San Francisco, Calif.

## HIGH PRICES

**Send us your list of machine tools, electric motors or other idle equipment for prompt action.**

**GEORGE GALES**
**1133 Broadway New York City, N. Y.**
Tel—CHelsea 3-3600

## WANTED

WOOL WASHING AND WOOL DRYING MACHINES ALSO CARDING AND COMBING MACHINES SUITABLE FOR ¼ BLOOD WORSTED ADVISE FULL PARTICULARS.

**W-538,** Textile World
330 W. 42nd St., N. Y. C.

## WANTED

## 8 COPPER CANS

**84" wide, 23" Diameter with 2 uprights and gears.**

**W-540,** Textile World
330 West 42nd St., New York City

## WANTED

## MEDIUM SIZE TRICOT PLANT

*Advise Details*

**W-532,** Textile World
330 West 42nd St., New York, N. Y.

## Woolen looms wanted

Automatics, state maker's name, type, age, box motion, harnesses, reed space, shuttle size, heaviest cloth woven, where can be inspected and cash price.

**W-536,** Textile World
330 W. 42nd St., New York, N. Y.

# LIQUIDATING

## AMAZON KNITTING MILLS, MUSKEGON, MICH.

### SEWING MACHINES

**Union Special**

25—54800
9—29200
50—35300
11—9900
3—15400

**Union Buttons**

10—Button Sewers
10—Button Sewers used as Tubers

**Wilcox & Gibbs**

5 lock stitch
1 flat lock

**Metropolitan**

4—193-5 elastic machines with elastic pullers.

### MOTORS

200—A.C. electric from ¼ to 75 H.P.

### FOLDING ROOM EQUIPMENT

2—Grand Rapids Textile Co. #1-2 folders for goods up to 28 inches wide.
2—Grand Rapids Textile Co. tubular cloth turning machines with brass turning pipe, 5" diam. by 13 ft. lg. with stand, rolls and countershaft.
10—Steam flatirons, units.
1—Conveyor, 100 ft. long.
2—Automatic steam pressing.

### RASCHEL KNITTERS

10—Raschel Knitting machines 60 inch (12 needles to the inch).
1—Raschel Knitting machine 60 inch (10 needles to the inch).
1—Raschel sample machine, 22 inch (12 needles per inch).

### KNITTING MACHINES

30—Wildman's Range 10 inch 10 cut 6 feed to 23 inch 10 cut 12 feed.
200—Nye Tredicks Range 10 inch 10 cut 8 feed to 23 inch 14 cut 12 feed.
1—Scott & Williams Tubular latch Needle Knitting machine 20" 16 Feed 14 Cut.
2—Copper Cuff Knitters 23 inch 6 Feed 14 Cut.
8—Scott & Williams latch needle tube knitters, Tables.

### BRAIDERS

107—New England Butt Co. 41 Carrier Flat braid machines are mounted on tables.
1—Crane Mfg. Co. Braid winder Spools from 3" to 8" lg. and up to 6 inches diam.
2—Spoolers, 40 spindles each, 4½ inch spools with 3 to 6 inch traverse.
1—Edging Spooler, 2 sides 7 spools per side, size 10½ x 6 inch diam.

### SPINNING

1—Howard & Bullough Bale Breaker, 1926 model, 12' extended apron Automatic Feed Regulator, Motor drive.
1—Howard & Bullough 1926 Model Vertical Opener with Hopper Feeders and #7 Openers, Motor Driven.
1—Howard & Bullough four (4) Section (48" per section) Cleaning Trunk.
20—Howard & Bullough Spinning Frames, 3" Gauge, 228 Spindles each, 1⅞" #1 Flange Rings in Cast Iron Holders, Separators, Band Drive.

### MISCELLANEOUS

Water Softening Equipment, Water Filterers, Color Grinders, Filter Presses, Electric Trucks, Pumps, Tanks. General Plant Equipment.

**Excellent finishing equipment from other liquidations.**

### FINISHING

1—Werner 48" Single Color Print Machine.
1—Rice, Barton & Fales 10-Color Print Machine.
1—Textile 8-Can Dryer, 23" x 60" Vertical Stack.
1—Butterworth 7-Can Dryer, 23" x 80", Horizontal.
1—Textile 26-Can Dryer, Copper, 23" x 45" Vertical.
1—54" King & Gerber Continuous Boil-Off Machine, with Rubber Nip Rolls and Slat Conveyor.
1—King & Gerber 65" 3-Roll Finishing Calender.
1—Textile 72" Full Width Open Soaper, with 2 Sets of Rubber Nip Rolls.
3—Stainless Steel Lined Sample Dye Becks.
1—4' Stainless Steel Lined Dye Beck.
1—19' Dye Beck.
3—Inclined Examining Machines.
1—30" Tolhurst Copper Basket Extractor.
1—48" Tolhurst Copper Basket Extractor.
4—Hercules 60" Rubber Basket Extractors, Motor Driven.
1—Atlas Fade-O-Meter.
3—50" Monel Lined Dye Jiggs.
2—72" Butterworth Dye Jiggs.
6—Copper Steam Jacketed Mixing Kettles, 50 to 200 Gallons Capacity.
2—1000 Gallon Steel Soap Kettles.
1—Gessner 80" 3-Roll Mangle, Heavy Duty, Roller Bearing, 12" Diameter Rubber Rolls, Direct Motor Drive.
1—76" Textile Heavy Duty Padder, 3 Rubber Rolls.
1—Van Vlaanderen 50" 3-Roll Print Padder, Roller Bearing.
3—Van Vlaanderen 2 and 3 Roll Quetches, 50" to 60" Face.
2—Birch Bros. Coronation Portable Sewing Machines.
1—Windsor & Jerauld 54" Tenter Frame, 60' Long.
1—Windsor & Jerauld 50" Tenter Frame, 30' Long.

# REPUBLIC TEXTILE EQUIPMENT COMPANY

**REFINANCING • APPRAISALS • PURCHASE • SALE • LIQUIDATION OF MILL PROPERTIES**

**Purchase and Sale of Used Machinery** **40 WORTH STREET, NEW YORK**

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## FOR SALE

**1 Curtis & Marble Inspecting Machine 44" with type A rolling up head**
**1—Sargent Yarn Conditioner, motor drive 220 V.**
**1—Eppenbach Colloid Mill**
**1 Lowell Slasher head way standard width**
**3' 5' & 6' Copper Flasher Cylinder**
**1 #0 Sturtevant Exhaust Window Fans 36"—48".**
**WANTED—1 Sargent Duplex or Parkhurst Burr Picker 40" or 48"**

***BOBBINS — SPOOLS — SUPPLIES***

**Direct Factory Agents Walter L. Parker, Bobbin & Spool Company**

BTS

**BAY STATE TEXTILE CO.**
**220 HARTWELL STREET • FALL RIVER, MASS.**

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## TANKS ON TOWERS

25,000 Gal. Cap., 60 Ft. Tower
35,000 Gal. Cap., 65 Ft. Tower.
40,000 Gal. Cap., 106 Ft. Tower.
50,000 Gal. Cap., 100 Ft. Tower.
50,000 Gal. Cap., 156 Ft. Tower.
60,000 Gal. Cap., 90 Ft. Tower.
65,000 Gal. Cap., 70 Ft. Tower.
100,000 Gal. Cap., 100 Ft. Tower.
150,000 Gal. Cap., 19 Ft. Tower.

## OIL TANKS

17—3000 Gal. & 6000 Gal. Cap.
6—12,000 & 18,000 Gal. Horizontal Oil Tanks.
7—1000-5000 & 55,000 Bbl. Cap.

**TIDEWATER EQUIPMENT & MCHY. CORP.**
**305 Madison Ave. New York, N. Y.**

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## FOR IMMEDIATE DELIVERY FROM OUR OWN STOCK:

3—30' Tenter Frames 52" with Metal Housings—Steamers—Batchers—Expanders
1—70' Tenter 52" Stainless Steel Clips—P.S. Housing—Heaters—Blowers
1—90' Tenter 50" Butterworth—Swing Brass Clips
2—40' Tenter 52" Metal Housings—Steamers—Batchers
2—45" Schreiners—Hydraulic Pump Accumulators
1—65" P & W Doubling & Rolling Machine (Chinaman)
2—50" 6-Bowl Super Chasing Calenders—Arranged for Continuous Production
1—54" 4-Bowl Calender—1—2 Bowl 65" Knitgoods Calender
1—50" Hydraulic Friction Calender Pump Accumulator
1—6-Compartment Desizing Machine—6 Sets Rubber Squeeze Rolls

**ALL OF ABOVE MACHINERY IS IN EXCELLENT CONDITION**

**Tel. Dexter 9650** **TEXTILE AUXILIARIES** **15-17 Ormsbee Ave. PROVIDENCE, R. I.**

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## HOSIERY MACHINES

**KNITTERS - RIBBERS - LOOPERS**
**CYLINDERS - DIALS - TRANSFERS**
**UNION SPECIAL SEAMERS**
**LOOPERS & SEAMER TABLES**

**C. M. FRENCH**
**Commercial Trust Bldg., Philadelphia, Pa.**

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**FOR SALE**

## BUTTERWORTH CALENDER

**7 ROLLS—80" FACE**

3 Composition Rolls, 4 Steel Rolls, Hydraulic lift —water-cooled journals. Located in South.

**AMES BAG CO.**
**10 EAST 40TH ST. NEW YORK CITY**

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**OFFERING: 90" C&M Cloth Perch & 100 yd. dial**
**Gerry Rag Picker & #90 Universal Winder**
**24" Perkins Waste Thread & Rag Cutter**
**92" Knowles 4x4 Hvy. Worsted Looms 25 har.**
**41" S/I Buckley type Down-stroke Cleaner**
**30" S/L Ceiling type Screen Condenser**
**72" P&S Revolving Sifting Screen Duster**
**1000 G.P.M. 2-stage 5" Centrif. Fire Pump**
**#7 & #8 Sturtevant Monogram Exhaust Blower**

**PAUL M. BROOMFIELD**
**15 Hathaway Street Boston, Mass.**

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**FOR SALE—Hosiery Mill Machinery**

We specialize in Scott & Williams, Reading, Banner, Wildman, Smith-Drum, Paramount and other types of hosiery mill equipment for seamless and full fashioned mills. Special attention to export trade.

**MORRIS SPEIZMAN**
**508-14 W. Fifth St. Charlotte, N. C.**

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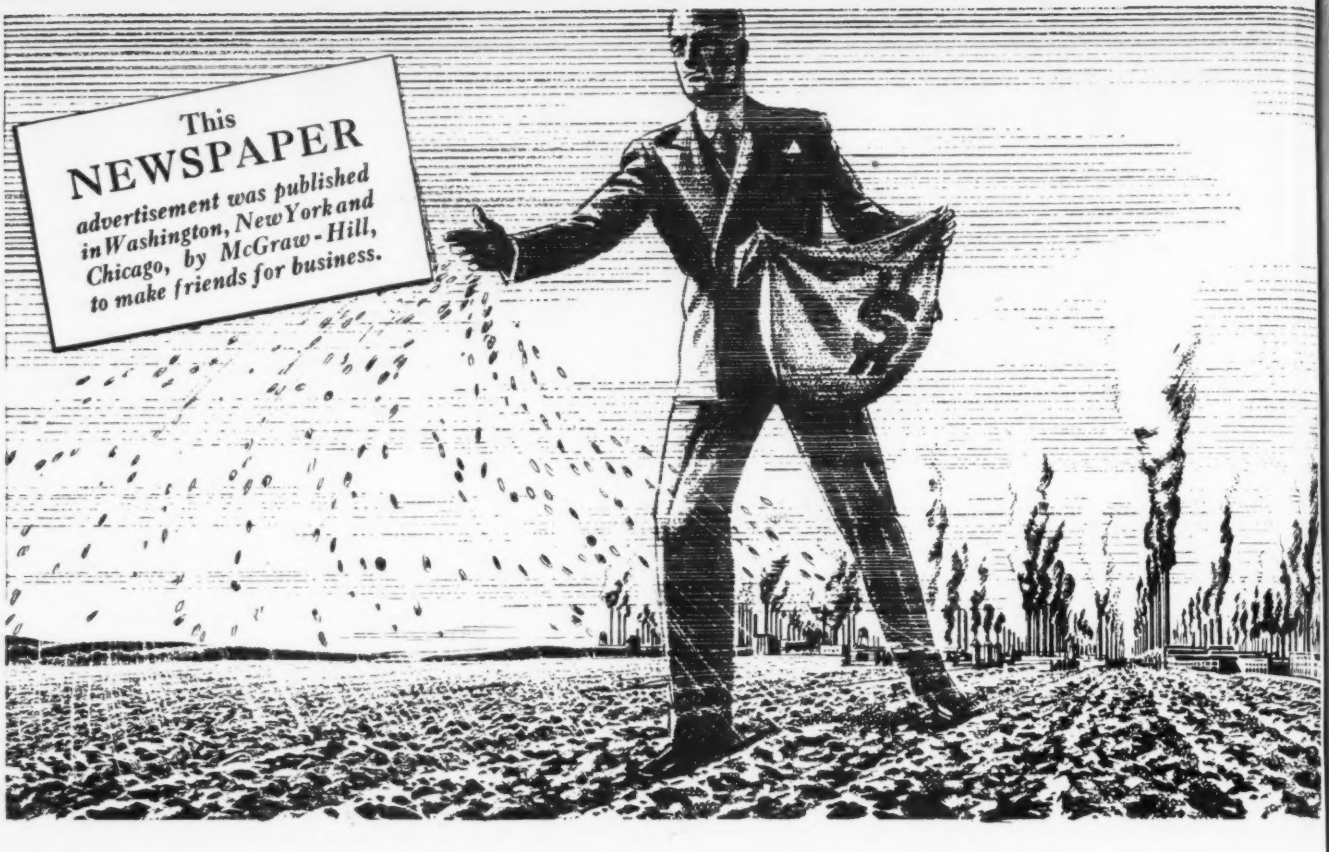
**14—4x4 Crompton & Knowles Worsted Box Looms 72" reed space 550 volt 3 phase motors**
**15—2600 hook Crompton & Knowles double lift jacquard machines**

All now running on upholstery fabrics. Can be inspected at

**ALBERT J. BARTSON, INC.**
**314 East 6th St. Charlotte, N. C.**




# *Where do jobs come from?*

SOMEDAY 10 million fighters, 2 million government workers and 10 or 15 million war workers are going to be asking: "Where can I find a JOB?"

The best answer will be a job for every questioner.

► The first step toward creating more jobs after the war should be to make sure that business has enough "Seed Money"* left over after taxes to grow a better crop of products and markets.

We have published some advertisements urging that the excess profits tax law be amended to let business keep enough of its "Seed Money" to convert its plants and start things rolling after the war.

► A proof of one of these "Seed Money" advertisements was sent to a man who lives up in Lowell, Mass. In reply, he wrote from his own experience such a good example of the way in which "Seed Money" creates jobs that we want you to have a chance to read it. Here it is:

*Reprints of this advertisement are available in handy booklet form.*

## Where do jobs come from? (*Cont'd*)

December 23, 1942

Mr. James H. McGraw, Jr.
McGraw-Hill Building
330 West 42nd Street
New York, N. Y.

Dear Mr. McGraw:

Your esteemed favor of December 11 was duly received and contents noted carefully.

I can truly say that my business is completely a development of "Seed Money" and "Profit." I started a commission Wool and Noils carbonizing business in Woonsocket, Rhode Island in July 1909, with three men and one boy for the payment of whose three days' work the first week, I had to borrow $35.00 from a friend, because I had not earned one penny for six weeks before I undertook to go in business for myself. I had to operate without any financial assistance but with ample moral credit and a very favorable reputation built up at my business in working for other mills.

In two years' time I put back in the plant I was hiring a good part of my profits and what I had left I invested in a plant in Lowell and incorporated a company where I started in the Wool and Noils carbonizing with 13 employees with a payroll of $300.00 in January 1912.

Since then, practically all profits were ploughed back into the business gradually in new, modern machines and since two years have the largest wool scouring machine in the world, built by our men in our plant, employing now from 225 to 250 men, with a payroll which some weeks exceeds $10,000.00.

I have raised a family of two boys and two girls. The boys are now my associates. We own the business outright, no outsiders, also two of the 15 buildings we occupy.

Of course, I cannot say that I have made a fortune, for, all I possess is in plant and machinery, but, for all these years my business has been pretty steady. I have paid wages and salaries to many people and all that out of "Seed Money" and "Profit." For many years I had a very hard, at times very discouraging struggle because of lack of working capital but I persevered, operating very economically and cautiously.

I founded the business which my two sons will continue and I hope successfully and moderately profitable.

I trust that others will write you similarly so that you will have plenty of facts and materials to carry on your campaign of education of the public.

With heartiest, best wishes of the season, I am

Sincerely yours,

JG:MNL James Gilet

● ● ●

**Doesn't that letter make it clear that reinvested profit is the source of new jobs?**

► **Under the present excess profits law, very little "Seed Money" can be saved for reinvestment after the war.**

**Isn't it about time for post-war planning to get down to the simple facts of good living?**

► **Men like James Gilet can keep this country at work, if legislators will make up their minds that good business is the source of all good living.**

**The mail that Congressmen get is their best contact with the people they represent. Write your Congressman and ask him to help in adjusting the law that takes away the "Seed Money" of business, and to review all laws with this principle in mind:**

***"What's Good for Business is Good for Americans"***

**THE McGRAW-HILL NETWORK OF INDUSTRIAL COMMUNICATION**

**22 publications, which gather "war-news" from the "war-production-front" through a staff of 153 editors and 725 engineer-correspondents . . . More than 1,500,000 executives, designers, production men and distributors use the editorial and advertising pages of these magazines to exchange ideas on war-production problems.**

**McGRAW-HILL BOOKS**

**Publishers of technical, engineering and business books for colleges, schools, and for business and industrial use.**

*"Seed Money" is that part of profit which is held for reinvestment in a business to insure its growth.

# McGRAW-HILL

*PUBLISHING COMPANY, INC. . . . BOOK COMPANY, INC.*

*330 WEST 42ND STREET, NEW YORK*

THE McGRAW-HILL NETWORK OF INDUSTRIAL COMMUNICATION:

American Machinist • Aviation • Bus Transportation • Business Week • Coal Age • Chemical & Metallurgical Engineering • Construction Methods • Electrical Contracting • Electrical Merchandising • Electrical West • Electrical World • Electronics • Engineering & Mining Journal • E. & M. J. Metal and Mineral Markets Engineering News-Record • Factory Management & Maintenance • Food Industries • Mill Supplies • Power • Product Engineering • Textile World • Wholesaler's Salesman • Affiliated with Business Publishers International Corporation, publishers of Business and Technical Magazines for Latin America, and Overseas Circulation.

Henry
We find it is no longer necessary to cut out tape selvage ends when leasing out. Steel Heddle Mfg. Co. short selvage harness will eliminate this costly practice.
Steve

**Essential tools in wartime —speed repairs**

Wherever machines run and wheels turn — in industrial plants, service industries and on farms — wheel pullers are essential for efficient maintenance and repair work. ARMSTRONG-BRAY wheel pullers are of 2 types: (1) CHAINGRIP universal pullers—pull wheels, pulleys, gears and pinions even at considerable distance from end of shaft; (2) STEELGRIP rigid arm pullers (11 sizes, 2 or 3 arm models).

**ARMSTRONG-BRAY & CO.**
*"The Belt Lacing People"*
5340 Northwest Highway
Chicago, U.S.A.

**INDUSTRIAL ENGINEERS**

*Specializing in*
TEXTILES FOR MORE THAN A QUARTER OF A CENTURY

**RALPH E. LOPER CO.**

COST SYSTEMS — WORK LOAD STUDIES
PAY ROLL CONTROLS
COST REDUCTION SURVEYS — SPECIAL REPORTS

GREENVILLE, S.C. — FALL RIVER, MASS.

**RODNEY HUNT**
*Since 1840*

WET FINISHING
**MACHINERY**
A century of experience building standard and special machinery and rolls is at your service. What is your problem?

**RODNEY HUNT MACHINE COMPANY**
66 Mill Street — Orange, Mass., U.S.A.

**LAZENBY**
**COP-BUTT-BOBBIN**
**WINDERS**

Keep your machines at top production with Maintenance and Repair Parts from our stock.

Genuine Lazenby Parts assure correct fit and material.

**F. A. LAZENBY & CO.**
31 E. LEE ST. — BALTIMORE, MD.

ALL STEEL
**ECONOMY BALING PRESSES**
ALL SIZES FOR ALL PURPOSES
*LARGEST LINE BUILT IN U.S.A.*

**ECONOMY BALER CO., DEP'T. J ANN ARBOR, MICH., U.S.A.**

**REPRESENTATIVES:**
New York Office: 100 Gold St.
Philadelphia Office: Drexel Bldg.
Terrell Machine Co., 1200 No. Church St., Charlotte, N. C.
Boston Office: 601 Atlantic Ave.
Other Sales and Service Branches in most Important Cities.

# In the Mill and on the Battlefield

Machines of battle and machines of production both depend on Bunting Bronze Bearings today. For your needs Bunting Factory-Finished Bearing Bronze Bars and completely machined and finished Standardized Bronze Bearings are available in many different sizes directly from local stocks. Ask your wholesaler. Write for catalog. The Bunting Brass & Bronze Company, Toledo, Ohio. Warehouses in All Principal Cities.

Bunting Bronze Bearings for practically all makes and sizes of electric motors are completely finished, ready for assembly.

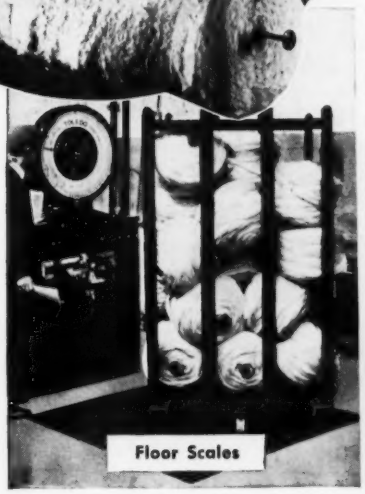
# Bunting

BRONZE BUSHINGS • BEARINGS • PRECISION BRONZE BARS

## TURN OUT TEXTILES *Faster*

● Now that top-speed is demanded in textile production . . . there's a greater-than-ever need for TOLEDO *accuracy, speed* and *dependability* at every weighing point in your plant! Toledos appeal to practical men . . . these scales expertly designed for every textile weighing job . . . ruggedly built to "take it"! Send now for illustrated "Toledo Textile Book." Toledo Scale Company, Toledo, Ohio.

## TOLEDO TEXTILE SCALES



*Accurate PRINTED weights* eliminate costly human errors in reading and recording weight figures! Toledo Printweigh meets Textile production needs with unerring *printed* records and greatest speed! Prints BIG figures FAST . . . on thick tickets . . . sheets . . . or strips . . . with extra copies.

## To get that kindly hand we even use WISSCO CARDS

Do YOU have yarn problems? Beautiful *finished* results start with perfect carding. That means—care and cleaning of the card clothing, and cards that *stay* perfect, and sharp. Wissco uses special steels from our own furnaces; precision ground by experts; checked even under a microscope. Wissco Special Foundation permits up to 200 lbs. more tension, eliminating need for redrawing after several months. Write for literature. Wickwire Spencer Steel Co., 500 5th Ave., New York.

*Wissco*

**CARD AND NAPPER CLOTHING**

for wool, worsted, cotton, silk, asbestos and specialties

## BEHIND THE GUN

. . . and behind the machine, men have learned to depend on Coffing Hoisting Equipment. Rugged — dependable and economical. All Coffing rachet lever hoists are tested up to 100% over rated capacity. Illustrated is model ATG "Safety Pull" ratchet lever hoist. Write today for Catalog GJ 6.

## COFFING HOIST CO.

*Manufacturers of*

**Ratchet Lever, Spur Geared, Electric and Differential Hoists**

**Trolleys • Utility Maintenance Tools**

**DANVILLE ILLINOIS**

## DAVIS AND FURBER

***For the duration, our shops are principally engaged on war work.***

***We are doing our utmost, by extra effort and careful planning, to deliver essential supplies for repairs and maintenance.***

**MACHINE PARTS FOR REPAIRS AND MAINTENANCE**
**CARD CLOTHING**
**NAPPER CLOTHING**
**GARNETT WIRE**
**LEATHER RUBB APRONS**
**LEATHER CONDENSER TAPES**

**DAVIS & FURBER**
**NORTH ANDOVER, MASS.**

THE ACCEPTED STANDARD

# MILLIONS of SPINDLES

## WORKING FOR WAR

Eleven million men in uniform means a lot of traveler hours in the textile industry. It also means long continuous periods of high sustained speed. It means that travelers have got to work harder and do better—because there is no time for failures, errors, delays.

For seven years Carter has been building for something like this. Our customers expect *more* of Carter Travelers because they know that we know what they *must* have.

We have developed a practical solution to temporarily replace our standard metal cans with a hermetically sealed, double strength, especially treated paper board box.

**THE A. B. C. LINE – RING TRAVELERS**

**CARTER TRAVELER COMPANY**
DIVISION OF
A. B. CARTER, INC.
GASTONIA, N. C.

SALES REPRESENTATIVES

R. D. HUGHES SALES CO., 2106 S. LAMAR STREET, DALLAS, TEXAS
*Eastern (Including Canada)* C. E. HERRICK, 44 FRANKLIN STREET, PROVIDENCE, RHODE ISLAND
*European:* MELLOR, BROMLEY & CO., LTD., LEICESTER, ENGLAND
*Mexico:* LEO LENK, APARTADO NO. 533, MEXICO CITY, D. F.

# SPECIALLY DESIGNED *Speed Sweep* FOR TEXTILE MILLS

**Eliminates All Waste Motion; Outlasts Ordinary Brooms 3 to 1**

THIS Speed Sweep brush fits right into accelerated wartime production. It is really two exceptional sweeping tools in one. A slight twist of the handle makes it a perfect brush. Another twist makes it a perfect broom. As a broom it handles corners, obstructions, and cramped spaces with ease. As a brush it takes care of open floor spaces.

Both as a brush as well as a broom this Speed Sweep is unsurpassed in handling lint and other litter. Two center rows of tufts are of heavy Bassine fibre to handle rough dirt. Outside rows are of finer Union fibre to control dust and fine particles. These tufts are closely spaced, compact and trimmed flat for "spring and snap" action. They are hand-drawn (not just stapled) into a narrow block so that they cannot come out or come loose. The block itself is of light weight wood, re-enforced by a pressed steel back. The handle is adjustable to the height of the sweeper and can be reversed instantly.

Speed Sweep brushes have been proved by so many firms and under such varied conditions that they are sold with an unconditional guarantee to meet your requirements. You receive full credit if you return brushes within 10 days.

*One simple twist of the handle makes it a perfect brush.*

*Another twist of the handle makes it a perfect broom.*

**ORDER AS FOLLOWS:**

| CATALOG NO. | PRICES | | | |
|---|---|---|---|---|
| | 6 | 24 | 96 | Gross |
| No. 419 Speed Sweep *11" Block—5¼" Tufts* | **$2.00** | **$1.75** | **$1.45** | **$1.20** |

Smallest shipping unit, six brushes. Prices are F. O. B. Milwaukee. Textile producers and processors are entitled to AA-2X (P-139) priority rating. This rating insures prompt delivery. Order Today.

**MILWAUKEE DUSTLESS BRUSH CO.**
**525 N. 22nd ST. MILWAUKEE, WIS.**

Harry—
How can we lick those uneven beams we're making on our slashers?
Horace

Horace
That is easy. A steel Heddle Mfg. Co. positive expansion comb will do the job perfectly.
Harry

THE HURRICANE BLEW IT OFF *but*

**2 FLOORS NOW DO THE WORK OF THREE WITH Sarco**

The hurricane blew the top floor of the New England Overall Company to the ground. A rearrangement of machines — plus a speed-up produced by all-Sarco steam traps and controls — enabled this company to do more business with two floors than they formerly did with three.

The owner says: "If you have three wash wheels, you should be able to load them up all at the same time. If your plant is full of presses, pants stretchers, tumblers, etc., no one machine should be slowed up by any or all of the others. Our contractors advised a separate Sarco steam trap for each machine — we know now it would have been folly to do it any other way. I know what steam costs and what it costs to have operators wait. I'll spend a dollar to save ten anytime." Catalog No. 350.

145

SARCO SAVES STEAM

SARCO COMPANY, INC.
475 Fifth Avenue, New York, N. Y.
Sarco Canada Ltd., Federal Bldg., Toronto, Ont.

Style 27

**LANE BASKET TRUCKS**

Smooth - Light - Durable

Designed for
All Textile, Garment, and
Many Other Industrial Plants

**W. T. Lane & Bros., Inc.**
Mfrs.
Poughkeepsie, N. Y.



TISSUE TIPS by VICTORIA

EAT AT JOE'S
CHARLIE'S GOOD EATS
CHARLIE'S GOOD EATS
EVERYONE GOES TO CHARLIE'S 'CAUSE HIS REST ROOMS HAVE VICTORIA!
CHARLIE'S GOOD EATS

**Specify VICTORIA TOILET TISSUES**

Single Fold, Double Fold or Black Core—for dependable quality.
Victoria Paper Mills Co., Fulton, N.Y. Craftsmen in paper-making since 1880.

*Speed Production for Victory!*

**INSTALL PRODUCTIMETERS ON YOUR TEXTILE MACHINES**

The new "HDW" Rotary Productimeter (shown above) meets the ever increasing demand for high-speed rotary counters, moderately priced. Speed up to 2000 counts per minute. Use it for recording revolutions of the drive shaft, or, geared in proper ratio to the diameter of a roll, to obtain lineal measurement. Double worm drive, oil-less bearings, hardened steel parts, strong plastic wheels . . . assure smooth action and long, dependable service.

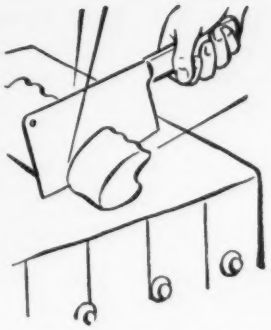
***SEND FOR TEXTILE CATALOGS TODAY!***

Pick Counters No. 5
Lineal Counters No. 6
Predetermined Counters No. 15
Rotary Counters No. 8

**DURANT MANUFACTURING CO**

1931 N. Buffum Street
Milwaukee, Wis.

179 Eddy Street
Providence, R. I.



# BUTCHER BLOCK STAMINA

## *for Heavy-Duty Floors*

*New plant of the Piedmont Shirt Co., Greenville, S. C.—floored with* **MFMA** *Northern Hard Maple.*

## Tough-Fibered, Tight-Grained Clean HARD MAPLE!

Watch your butcher working at his block! Those guillotine blows of his heavy cleaver are falling on Northern Hard Maple, the wood that's tough enough to "take it" and stay clean, wherever used and however hard the job.

Put the same tight-grained material in a textile-mill floor! Give it all the punishment mill floors usually get; it will easily stand up under it, over year after year of bright cleanliness, comfort under foot, and low cost of upkeep. Easily kept lint-free and dustless. Plant traffic moves faster over Hard Maple's velvet-smooth, non-slippery surface.

There are so *many sound, logical reasons* for flooring a factory with Northern Hard Maple, that you have *every reason* to consult your architect about it, whether you're re-flooring or planning a new plant! Available in strips or blocks.

**MAPLE FLOORING MANUFACTURERS ASSOCIATION**
**1793 McCormick Building, Chicago, Illinois**

*Write for folder on heavy-duty finishes for old or new Maple floors, which further reduce cleaning costs.*

Floor *with*
**MFMA** Maple
REG. U. S. PAT. OFF.
(NORTHERN HARD)

# Sterling Ring Travelers

**ESSENTIAL**

Next to food, Textiles are *most* essential to both the war and the "after war." Ring Travelers, tho made of critical metals, are essentials for Textiles.

*Southern Representatives*

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D. J. QUILLEN
Box 443 Spartanburg, S. C.

SOUTHWEST SUPPLY CO.
Box 236 Itasca, Texas

STERLING RING TRAVELER CO
FALL RIVER, MASS.

# INDEX TO ADVERTISERS

An * indicates additional data will be found in 1942 Textile World Yearbook and Catalog.


| | Page |
|---|---|
| Aberfoyle Mfg. Co. | 180 |
| Abington Textile Mchy. Works. | 162 |
| Acme Knitting Machine & Needle Co. | 212 |
| *Acme Steel Co. | 198 |
| Alemite Div. Stewart-Warner Corp. | 207 |
| *Allis-Chalmers Mfg. Co. | 4, 5 |
| *Alloy Steel Products Co., Inc. | 23 |
| Aluminum Co. of America | 201 |
| American Cyanamid & Chemical Corp. | 49 |
| *American Moistening Co. | 204 |
| *American Monorail Co. | 176 |
| American Rolling Mill Co., The | 197 |
| American Viscose Corp. | 26 |
| American Woolen Co. | 210 |
| American Yarn & Processing Co. | 67 |
| *Aridye Corp. | 181 |
| *Arkansas Co., Inc. | 175 |
| Arlington Mills | 168 |
| Armstrong-Bray & Co. | 224 |
| *Armstrong Cork Co. | 125 |
| Atlantic Stainpruf Co. | 172 |
| *Atlas Electric Devices Co. | 158 |
| Atwood Machine Co. | 117 |
| Bahnson Co., The | 162 |
| Bailey, Frank | 166 |
| *Baldwin-Duckworth Div. Chain Belt Co. | 44 |
| *Barber-Colman Co | 171 |
| *Barnes Co., Henry K. | 121 |
| Bischoff Co., Inc., Ernst | 214 |
| *Blickman, Inc., S. | 164 |
| *Booth Co., Benjamin | 206 |
| *Boston Woven Hose & Rubber Co. | 47 |
| Breuer Electric Mfg. Co. | 209 |
| Bright Light Reflector Co., Inc. | 36 |
| Brinton Co. | 213 |
| Buffalo Forge Co. | 61 |
| Bunting Brass & Bronze Co., The | 225 |
| Burkart-Schier Chemical Co. | 168 |
| *Butterworth & Sons Co., H. W. | 141 |
| Calco Chemical Div. American Cyanamid Co. | 15 |
| *Caldwell Co., W. E. | 213 |
| Carbomatic Corp. | 160 |
| Carrier Corp. | 65 |
| *Carter Traveler Co., Div. of A. B. Carter, Inc. | 227 |
| Cities Service Oil Co. | 59 |
| Clinton Company | 140 |
| Clutsom Machines, Inc. | 150 |
| Cocker Machine & Foundry Co. | 192 |
| Coffing Hoist Co. | 226 |
| Colgate-Palmolive-Peet Co. | 161 |
| Collins & Aikman Corp. | 208 |
| Commonwealth Color & Chem. Co. | 215 |
| Cooper Co., Chas. | 203 |
| Corn Products Sales Co. | 170 |
| Cotton Textile Institute | 209 |
| Crabb & Son, Wm. | 202 |
| *Crane Mfg. Co. | 210 |
| Crocker-Wheeler Electric Mfg. Co. | 54 |
| Dana Warp Mills | 208 |
| Darnell Corp., Ltd. | 154 |
| *Dary Ring Traveler Co., The | 206 |
| *Davis & Furber Machine Co. | 226 |
| Dayton Rubber Mfg. Co. | 27 |
| *DeBothezat Ventilating Equip. Div. American Machine & Metals, Inc. | 200 |
| Devoe & Raynolds Co., Inc. | 142 |
| Diamond Alkali Co. Standard Silicate Div. | 213 |
| *Dinsmore Mfg. Co. | 210 |
| Dodenhoff Co., W. D. | 160 |
| *Dommerich & Co., L. F. | 18 |
| Dow Chemical Co., The | 165 |
| *Draper Corporation | 3 |
| Duplan Corp., The | 196 |
| Durant Mfg. Co. | 229 |
| *Du Pont de Nemours & Co., E. I. Dyestuffs Division | 188 |
| Finishes Division | 62 |
| *Economy Baler Co. | 224 |
| Electro Metallurgical Co. | 58 |
| *Emmons Loom Harness Co. | 42 |
| Fafnir Bearing Co., The | 50 |
| *Fairbanks, Morse & Co. | 145 |
| Falls Yarn Mills | 208 |
| *Fidelity Machine Co. | 55 |
| *Fletcher Works | 183 |
| Formica Insulation Co., The | 13 |
| Foster Machine Co. | 32 |
| *Fuller Brush Co., The | 127 |
| *Gardinol Corp | 190 |
| Gardener-Denver Co. | 52 |
| Gates Rubber Co., The | 66 |
| General Dyestuff Corp. | 19 |
| General Electric (Lamp Dept.) | 25 |
| General Electric Co. (Refrigeration Dept.) | 157 |
| Globe Dye Works | 198 |
| Goodyear Tire & Rubber Co. | 9 |
| Graton & Knight Co. | 30, 31 |
| *Graver Tank & Mfg. Co., Inc. | 57 |
| Gulf Oil Corp. | 56 |
| *H & B American Mach. Co. | 40 |
| Hart Products Corp. | Inside Back Cover |
| Heineman Corp., Oscar | 186 |
| Henry, Andrew K. | 209 |
| Hercules Powder Co., Inc. | 45 |
| Hinde & Dauch | 22 |
| Houghton & Co., E. F. | 33 |
| *Howard Bros., Mfg. Co. | 14 |
| *Hunt Machine Co., Rodney | 224 |
| *Hunter Machine Co., James | 155 |
| Industrial Rayon Corp. | 24 |
| *Ingersoll-Rand | 195 |
| International Nickel Co., Inc. | 189 |
| *Ives Co., L. T. | 212 |
| Johnson & Son, Inc., S. C. | 149 |
| Johnson Machine Works, Chas. B. | 20 |
| Kaumagraph Co. | 123 |
| *Kenyon & Son, D. R. | 214 |
| Lane & Bros., Inc., W. T. | 228 |
| *Laurel Soap Mfg. Co., Inc. | 187 |
| Lazenby & Co., F. A. | 224 |
| Leighton Machine Co. | 147 |
| Lewellen Mfg. Co. | 196 |
| Loper Co., Ralph E. | 224 |
| Lunkenheimer Co., The | 194 |
| Maple Flooring Mfgrs. Assoc. | 229 |
| Meinhard, Greeff & Co., Inc. | 152 |
| Merrow Machine Co., The | 202 |
| Mill Devices Co., Div. of A. B. Carter, Inc. | 227 |
| Milwaukee Dustless Brush Co. | 227 |
| Monomac Spinning Co. | 168 |
| *Monsanto Chemical Co. | 51 |
| Montgomery Co. | 174 |
| *Murdock & Geb Co. | 208 |
| National Carbon Co., Inc., Carbon Sales Div. | 182 |
| National Cotton Council of America | 209 |
| National Lead Co. | 191 |
| National Oil Products Co. | 167 |
| *National Ring Traveler Co. | 209 |
| National Starch Products, Inc. | 169 |
| New Departure Div. of General Motors | 11 |
| New England Butt Co. | 212 |
| N. Y. & N. J. Lubricant Co. | 209 |
| Niagara Alkali Co. | 177 |
| Nonquit Mills | 168 |
| *Norma-Hoffmann Bearings Corp. | 48 |
| Oakite Products, Inc. | 215 |
| Pabst Sales Co. | 146 |
| Parks-Cramer Co. | 148 |
| Parks & Woolson Machine Co. | 207 |
| Penick & Ford, Ltd. | 215 |
| Pennsylvania Salt Mfg. Co. | 163 |
| Pequot Mills | 206 |
| *Perkins & Son Inc., B. F. | 184 |
| Philadelphia Quartz Co. | 214 |
| *Proctor & Schwartz, Inc. | 151 |
| Quaker Chemical Products Corp. | 143 |
| Railway Express Agency, Air Express Div. | 41 |
| Reiner Inc., Robt. | 200 |
| *Reliance Electric & Eng'g Co. | 21 |
| *Rhoads & Sons, J. E. | 71 |
| *Robert & Co. | Inside Front Cover |
| *Rohm & Haas Co., Inc. | 53 |
| Rome Soap & Mfg. Co. | 214 |
| Royce Chemical Co. | 68 |
| Ryerson & Son, Inc., Joseph T. | 172 |
| *Saco-Lowell Shops | 8 |
| *Sarco Co., Inc. | 228 |
| *Scholler Bros., Inc. | 185 |
| *Scott Co., Henry L. | 168 |
| Scott & Williams, Inc. | 173 |
| Sinclair Refining Co. (Inc.) | 12 |
| Singer Sewing Machine Co. | 205 |
| Sirrine & Co., J. E. | 174 |
| *Solvay Sales Corp. | 156 |
| *Sonoco Products Co. | 119 |
| Southworth Mach. Co., The | 166 |
| Southeastern Construction Co. | 144 |
| Standard-Coosa-Thatcher Co. | 43 |
| Standard Fabricators | 39 |
| Standard Pressed Steel Co. | 199 |
| *Standard Soap Co. of Camden | 166 |
| Steelcote Mfg. Co. | 153 |
| Steel Heddle Mfg. Co. | 206, 212, 224, 228 |
| Sterling Ring Traveler Co. | 229 |
| *Stokes Machine Co., F. J. | 207 |
| *Sturtevant Co., B. F. | 34, 35 |
| Sun Oil Co. | 7 |
| Talcott, Inc., James | 179 |
| Taylor Instrument Co.'s | 60 |
| *Terrell Machine Co., Inc., The | 158 |
| Texas Co. | 72 |
| Textile Banking Co. | 159 |
| Textile Machine Works | 63, 64 |
| *Thomas & Skinner Steel Products Co. | 164 |
| *Toledo Scale Co. | 225 |
| *Tolhurst Centrifugals Div. | 204 |
| Tompkins Bros. Co. | 212 |
| *Torrington Co., The | 37, 38 |
| Tubize Chatillon Corp. | 28, 29 |
| *U. S. Ring Traveler Co. | 16, 17 |
| Union Carbide & Carbon Corp. | 58, 182 |
| *Universal Winding Co. | 128 |
| *Veeder-Root Inc. | Back Cover |
| Victoria Paper Mills Co. | 228 |
| Wallerstein Co., Inc. | 214 |
| Watson-Williams Mfg. Co. | 179 |
| Wayne Mfg. Co. | 213 |
| *Whitin Machine Works | 10 |
| *Whitinsville Spinning Ring Co. | 208 |
| Whitman Co., Inc., William | 168 |
| Whitney Chain & Mfg. Co., The | 193 |
| Wickwire Spencer Steel Co. | 226 |
| Wildman Mfg. Co. | 211 |
| *Wolf & Co., Jacques | 46 |
| Wolstenholme Sons & Co., Inc., Thos. | 208 |


## PROFESSIONAL SERVICES


| | |
|---|---|
| Lancaster Allwine & Rommel | 216 |
| Loper Co., Ralph E. | 224 |
| Robert & Co. | Second Cover |
| Sirrine & Co., J. E. | 174 |


## SEARCHLIGHT SECTION

*Classified Advertising*


| | |
|---|---|
| BUSINESS OPPORTUNITIES | 216-220 |
| EMPLOYMENT SERVICE | |
| Ramond Service, Inc., Charles P. | 216 |
| POSITIONS VACANT | 216 |
| POSITIONS WANTED | 216-220 |
| WANTED TO PURCHASE | 220 |
| USED AND SURPLUS EQUIPMENT | 217-220 |
| Ames Bag Co. | 218-221 |
| Bartson Inc., Albert J. | 221 |
| Bay State Textile Co. | 221 |
| Brill Equipment Corp. | 220 |
| Bromfield, Paul M. | 221 |
| Consolidated Products Co., Inc. | 219 |
| French, C. M. | 221 |
| Fyans, A. F. | 218 |
| Gaines Textile Mchy. Co. | 218 |
| Gales, George | 220 |
| Liberkowski, A. | 218 |
| Lotz, John | 218 |
| Machinery Liquidating Company | 217 |
| McCaffrey & Son, Inc., L. J. | 218 |
| McCloskey Inc., John J. | 218 |
| McDowell, Norman M. | 218 |
| Republic Textile Equipment Co. | 221 |
| Smith Textile Mchy. Co., Geo. E. | 218 |
| Speizman, Morris | 221 |
| Standard Mill Supply Co. | 218 |
| Stephenson, Harry | 218 |
| Tidewater Equip. & Machy. Corp. | 221 |
| Textile Auxiliaries | 221 |
| Welsh, Robert H. | 218 |

# Now KOPAN

A HARTEX PRODUCT

PATENTS PENDING

## A PERMANENT CELLULOSE FINISH

• A major development in modern fabric finishing. Suitable for sheets, damasks, shirtings and many types of knitted and woven fabrics. Imparts to each fiber a permanent coating which adds to durability, strength and appearance. Among the many advantages of KOPAN are included:

**EXCELLENT SHRINKAGE CONTROL** — Minimizes shrinking and stretching in laundering and dry cleaning. An active aid to Sanforizing.

**INCREASED TENSILE STRENGTH** — Fabrics are more resistant to abrasion and wear.

**EVEN PENETRATION** — Produces a clean, smooth surface. Spreads evenly with pigment colors, providing uniform and clear shades.

**ELIMINATES SLIPPAGE** — Anchors each thread, thus minimizing fraying and displacement.

**WIDE APPLICATION** — Available in several viscosities to provide a great variety of desired finishes with the required hand and appearance.

**AN EXCELLENT BINDER** — Works perfectly with fillers, pigments and weighting compounds.

**EASY TO USE** — May be applied before boil-off, during mercerization, before or after dyeing or bleaching — or as final finish.

**ECONOMICAL** — Low cost helps meet production standards. No special machinery required.

PERMALON makes news!
A HARTEX PRODUCT
HART PRODUCTS CORP.
Chemicals for Every Phase of Textile Processing
1440 BROADWAY NEW YORK N. Y.
MOSQUITO NETTING PROCESSED WITH PERMALON MEETS GOVERNMENT SPECIFICATIONS

KOPAN is a natural outgrowth of the successful use of PERMALON for military fabrics. Millions of yards of mosquito and head nettings for use by our armed forces, have been processed with PERMALON. KOPAN possesses all the advantages of PERMALON plus a flexibility of formula which permits extensive variations for civilian uses and specific fabrics. Only finest quality cellulose is used in making KOPAN.

*Celludye* **PIGMENT COLOR CONCENTRATE FOR USE WITH KOPAN**

As in PERMALON, no additional treatment is required when these colors are added to KOPAN. Quick penetration — uniform, clear shades are assured. THE HART PRODUCTS CORP. is the sole selling agent for Celludye Pigment Colors.

**CONSULT US:** *The versatility of* KOPAN *is constantly widening its field of application. Our technical staff will cooperate with manufacturers and processors to develop a* KOPAN *formula for their special needs. Write for further information.*

**HART PRODUCTS CORP.**

*Chemicals for Every Phase of Textile Processing*

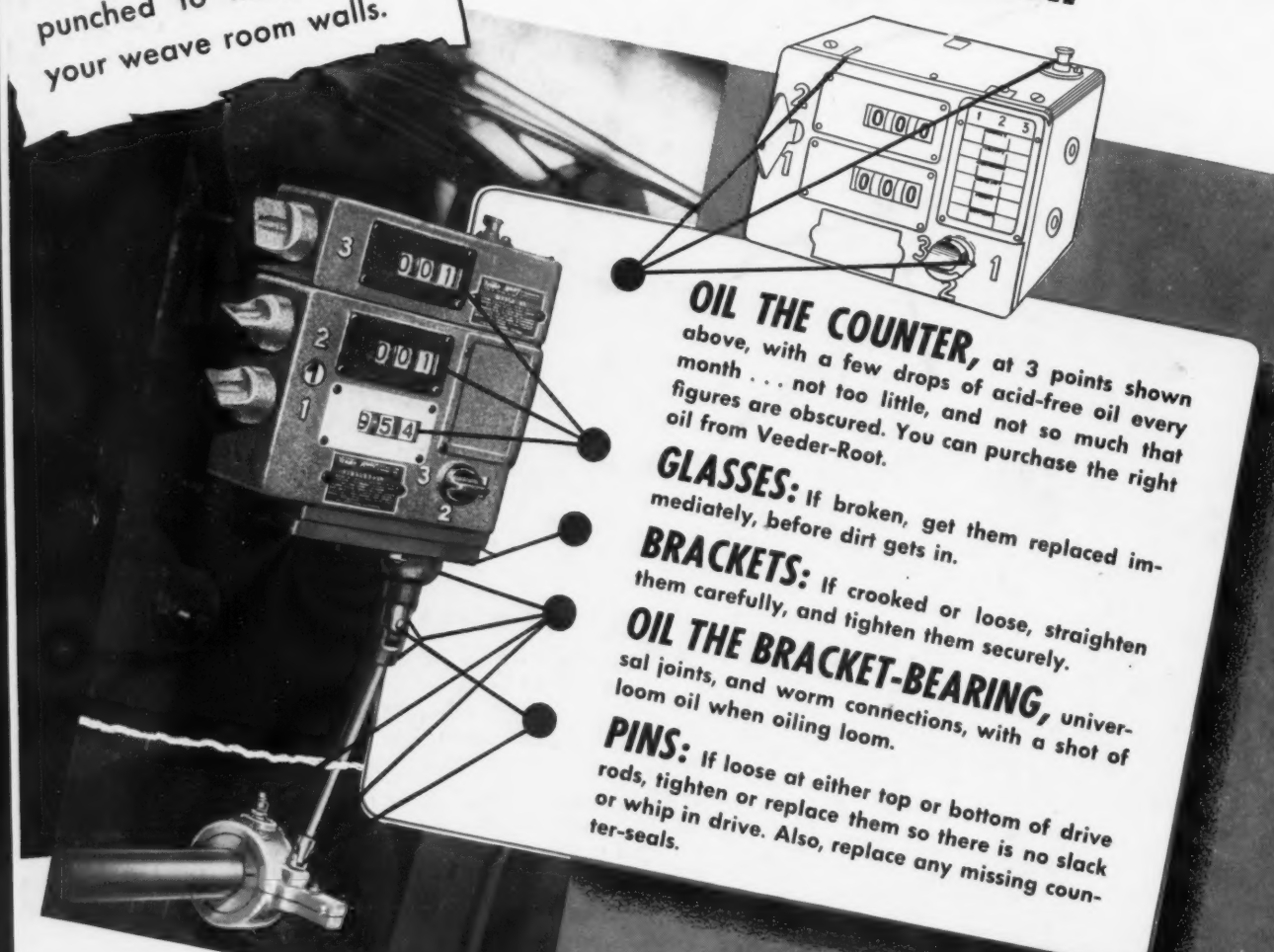
1440 BROADWAY, NEW YORK, N. Y.

The HART PRODUCTS COMPANY of CANADA, LTD. • GUELPH, ONTARIO

# NEW...Free Check Chart

## Make this Regular Quick Inspection of all VEEDER-ROOT 2-3 PICK COUNTERS in order to "Keep 'em Counting" . . . for the Duration

Write us how many looms you're running, and we'll send you an adequate supply of these 8½" x 10½" cardboard cards, ready punched to hang up on your weave room walls.



**OIL THE COUNTER,** at 3 points shown above, with a few drops of acid-free oil every month . . . not too little, and not so much that figures are obscured. You can purchase the right oil from Veeder-Root.

**GLASSES:** If broken, get them replaced immediately, before dirt gets in.

**BRACKETS:** If crooked or loose, straighten them carefully, and tighten them securely.

**OIL THE BRACKET-BEARING,** universal joints, and worm connections, with a shot of loom oil when oiling loom.

**PINS:** If loose at either top or bottom of drive rods, tighten or replace them so there is no slack or whip in drive. Also, replace any missing counter-seals.

ARMY E NAVY

77204

**VEEDER-ROOT INCORPORATED, HARTFORD, CONN.**

*OFFICES IN Boston, Chicago, Cincinnati, Cleveland, Detroit, Greenville, S. C., Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, Montreal, Buenos Aires, Mexico City. In England: {new address on request.} In Canada: Veeder-Root of Canada, Ltd., Montreal*